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PROJECT

Georgia State University
Project No 093-073-11
J – 183 Humanities – Law Building
85 Park Place
Atlanta, GA 30303

MECHANICAL CONTRACTOR

Gainesville Mechanical, Inc
2519 Monroe Dr
Gainesville, GA 30507
770.532.9130

MECHANICAL ENGINEER

Stevens & Wilkinson
100 Peachtree Street NW.
Suite 2500
Atlanta, GA 30303

Equipment

Daikin VRV Heat Pump Systems
Outdoor Unit TAGS: (HP-01~07)

Submittal Coordination Comments:

- 1. Contractor to verify electrical information and communication protocol before release. (BACnet interface is currently provided)**
 - 2. CDEs are included after the Table of Contents page. Deviations or Exceptions are for either of the following:**
 - There are indoor unit types listed in the specifications that are not scheduled or provided**
 - There are references to branch selector boxes, which are not used (or provided) in a Heat Pump Style System.**
- All other items are listed as “comply.”**



Table of Contents – GSU Humanities Law Bldg

Specification CDE	4
VRV Specifications	15
VRV System Details	29
Indoor Unit Data	65
Outdoor Unit Data	82
Accessories	108

SECTION 23 8129
VARIABLE REFRIGERANT VOLUME (VRV) HVAC SYSTEM
REVISION #6

PART 1 GENERAL

C 1.01 SECTION INCLUDES

- A. Variable refrigerant volume HVAC system includes:
 - 1. Outdoor/Condensing unit(s).
 - 2. Indoor/Evaporator units.
 - 3. Branch selector units.
 - 4. Refrigerant piping.
 - 5. Control panels.
 - 6. Control wiring.

C 1.02 RELATED REQUIREMENTS

- A. Section 01 7900 - Demonstration and Training.
- B. Section 22 1005 - Plumbing Piping: Condensate drain piping.
- C. Section 22 3000 - Plumbing Equipment: Cooling condensate removal pumps.
- D. Section 23 0800 - Commissioning of HVAC.
- E. Section 23 2300 - Refrigerant Piping and Specialties: Additional requirements for refrigerant piping system.

C 1.03 REFERENCE STANDARDS

- A. ANSI/AHRI 1230-2010 with Addendum 1: Performance Rating of Variable Refrigerant Flow (VRF) Multi-Split Air-Conditioning and heat Pump Equipment.
- B. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.
- C. ASHRAE (FUND) - ASHRAE Handbook - Fundamentals.
- D. ASHRAE Std 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings; American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc (ANSI/ASHRAE/
- E. NFPA 70 - National Electrical Code; National Fire Protection Association.
- F. UL 1995 - Heating and Cooling Equipment.

C 1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Pre-Bid Submittals: For proposed substitute systems/products, as defined in PART 2, and alternate systems/products, as defined above, proposer shall submit all data described in this article, under the terms given for substitutions stated in PART 2.
- C. Design Data:
 - 1. Provide design calculations showing that system will achieve performance specified.
 - 2. Provide design data required by ASHRAE 90.1.
- D. Product Data: Submit manufacturer's standard data sheets showing the following for each item of equipment, marked to correlate to equipment item markings shown in the contract documents:
 - 1. Outdoor/Central Units:
 - a. Refrigerant Type and Size of Charge.
 - b. Cooling Capacity: Btu/h (W).
 - c. Heating Capacity: Btu/h (W).
 - d. Cooling Input Power: Btu/h (kW).
 - e. Heating Input Power: Btu/h (kW).
 - f. Operating Temperature Range, Cooling and Heating.

- g. Air Flow: Cubic feet per minute (Cubic meters per second).
 - h. Fan Curves.
 - i. External Static Pressure (ESP): Inches WG (Pa).
 - j. Sound Pressure Level: dB(A).
 - k. Electrical Data:
 - 1) Maximum Circuit Amps (MCA).
 - 2) Maximum Fuse Amps (MFA).
 - 3) Maximum Starting Current (MSC).
 - 4) Full Load Amps (FLA).
 - 5) Total Over Current Amps (TOCA).
 - 6) Fan Motor: HP (W).
 - l. Weight and Dimensions.
 - m. Maximum number of indoor units that can be served.
 - n. Maximum refrigerant piping run from outdoor/condenser unit to indoor/evaporator unit.
 - o. Maximum height difference between outdoor/condenser unit to indoor/evaporator unit, both above and below.
 - p. Control Options.
- c 2. Indoor/Evaporator Units:
 - a. Cooling Capacity: Btu/h (W).
 - b. Heating Capacity: Btu/h (W).
 - c. Cooling Input Power: Btu/h (kW).
 - d. Heating Input Power: Btu/h (kW).
 - e. Air Flow: Cubic feet per minute (Cubic meters per second).
 - f. Fan Curves.
 - g. External Static Pressure (ESP): Inches WG (Pa).
 - h. Sound Pressure level: dB(A).
 - i. Electrical Data:
 - 1) Maximum Circuit Amps (MCA).
 - 2) Maximum Fuse Amps (MFA).
 - 3) Maximum Starting Current (MSC).
 - 4) Full Load Amps (FLA).
 - 5) Total Over Current Amps (TOCA).
 - 6) Fan Motor: HP (W).
 - j. Maximum Lift of Built-in Condensate Pump.
 - k. Weight and Dimensions.
 - l. Control Options.
- 3. Control Panels: Complete description of options, control points, zones/groups.
- c E. Specimen Warranty: Copy of manufacturer's warranties.
- c F. Shop Drawings: Installation drawings custom-made for this project; include as-designed HVAC layouts, locations of equipment items, refrigerant piping sizes and locations, condensate piping sizes and locations, remote sensing devices, control components, electrical connections, control wiring connections. Include:
 - 1. Detailed piping diagrams, with branch balancing devices.
 - 2. Condensate piping routing, size, and pump connections.
 - 3. Detailed power wiring diagrams.
 - 4. Detailed control wiring diagrams.
 - 5. Locations of required access through fixed construction.
 - 6. Drawings required by manufacturer.
- c G. Operating and Maintenance Data:
 - 1. Manufacturer's complete standard instructions for each unit of equipment and control panel.
 - 2. Custom-prepared system operation, troubleshooting, and maintenance instructions and recommendations.

- 3. Identification of replaceable parts and local source of supply.
- H. Project Record Documents: Record the following:
 - 1. As-installed routing of refrigerant piping and condensate piping.
 - 2. Locations of access panels.
 - 3. Locations of control panels.
- I. Warranty: Executed warranty, made out in Owner's name.

C **1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications:
 - 1. Company that has been manufacturing variable refrigerant volume heat pump equipment for at least 10 years.
- B. Installer Qualifications: Trained and approved by manufacturer of equipment.
- C. All wiring shall be in accordance with the National Electric Code (NEC).
- D. The condensing unit will be factory charged with R-410A.
- E. The system shall be factory tested for safety and function.

C **1.06 DELIVERY, STORAGE AND HANDLING**

- A. Deliver, store, and handle equipment and refrigerant piping according to manufacturer's recommendations.

C **1.07 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Limited Warranty: Compressors: Daikin AC warrants to the customer who is the original owner and user of Daikin AC products specified above ("Customer") that under normal use and maintenance for comfort cooling and conditioning applications such products will be free from defects in material or workmanship. This warranty applies to parts only and is limited in duration to one(1) year from the earlier to occur of (a) the date of original installation, whether or not actual use begins on that date, or (b) eighteen(18) months from the date of shipment by Daikin AC. Customer must present proof of the original date of receipt and of installation of the product in order to establish the effective date of this warranty. Otherwise the effective date will be deemed to be the date of manufacture plus (60) days. Repaired or replacement parts are warranted for the balance of the warranty period applicable to the original part following the date on which the repaired or replacement part is provided to the Customer.
- C. Extended Warranty: For it's compressors only, Daikin AC provides the above warranty (which is applicable to parts only) for a (7) year period. This extended warranty for compressors is limited in duration to (7) years from the earlier to occur of (a) the date of the original installation, whether or not actual use begins on that date, or (b) eighteen(18) months from the date of shipment by Daikin AC, and applies to the compressor and compressor parts only. The effective date of this extended warranty shall be established as above.

PART 2 PRODUCTS

C **2.01 MANUFACTURERS**

- A. Basis of Design: The system design shown in the contract documents is based on equipment and system designed by Daikin AC; www.daikinac.com.
- B. Additional acceptable manfacturer's (subject to compliance with the specification):
 - 1. LG
 - 2. Trane
- C. Systems designed and manufactured by other manufacturers will be considered by Owner under the terms described for substitutions with the following exceptions:
 - 1. Substitutions: See Section 01 6000 - Product Requirements.
 - 2. Substitution requests will be considered only if received at least 10 days prior to the bid date.

3. Substitution requests will be considered only if required submittal data is complete; see article SUBMITTALS above.
4. Contractor (not equipment supplier) shall certify that the use of the substitute system and equipment will not require changes to other work or re-design by Design Professional.
5. Contractor or HVAC subcontractor shall certify that the substitute system will achieve the performance specified.
6. Do not assume substitution has been accepted until formal written notice has been issued by Design Professional.

C 2.02 HVAC SYSTEM DESIGN

- A. System Operation: Heating and cooling, simultaneously.
 1. Zoning: Provide capability for temperature control for each individual indoor/evaporator unit independently of all other units.
 2. Zoning: Provide heating/cooling selection for each individual indoor/evaporator unit independently of all other units.
 3. Provide a complete functional system that achieves the specified performance based on the specified design conditions and that is designed and constructed according to the equipment manufacturer's requirements.
 4. Conditioned spaces are shown on the drawings.
 5. Outdoor/Condenser unit locations are shown on the drawings.
 6. Indoor/Evaporator unit locations are shown on the drawings.
 7. Branch selector unit locations are not shown on the drawings.
 8. Required equipment unit capacities are shown on the drawings.
 9. Refrigerant piping sizes are not shown on the drawings.
 10. Connect equipment to condensate piping provided by others; condensate piping is shown on the drawings.

- B. Cooling Mode Interior Performance:
 1. Daytime Setpoint: 75-68 degrees F (20 degrees C), plus or minus 2 degrees F (1 degrees C).
 2. Setpoint Range: 57 degrees F (14 degrees C) to 77 degrees F (25 degrees C).
 3. Night Setback: 78 degrees F (25 degrees C).
 4. Interior Relative Humidity: 55-20-percent, maximum.

- C. Heating Mode Interior Performance:
 1. Daytime Setpoint: 68 degrees F (20 degrees C), plus or minus 2 degrees F (1 degrees C).
 2. Setpoint Range: 59 degrees F (15 degrees C) to 80 degrees F (27 degrees C).
 3. Night Setback: 60 degrees F (15 degrees C).
 4. Interior Relative Humidity: 10 percent, minimum.

- D. Outside Air Design Conditions:
 1. Summer Outside Air Design Temperature: 0.4 percent cooling design condition listed in ASHRAE Fundamentals Handbook.
 2. Winter Outside Air Design Temperature: 99.6 percent heating design condition listed in ASHRAE Fundamentals Handbook.

- E. Energy Design Wind Speed: 25 mph (40 km/h).

D: System is a heat pump design and NOT
Heat recovery. Simultaneous not included.

- F. Operating Temperature Ranges:

- ~~1. Simultaneous Heating and Cooling Operating Range: minus 4 degrees F (minus 20 degrees C) to 60 degrees F (16 degrees C) dry bulb.~~

- ~~2. Cooling Mode Operating Range: minus 4 degrees F (minus 20 degrees C) to 110 degrees F (43 degrees C) dry bulb.~~

- ~~3. Heating Mode Operating Range: 0 degrees F (minus 18 degrees C) to 77 degrees F (25 degrees C) dry bulb; minus 4 degrees F (minus 20 degrees C) to 60 degrees F (16 degrees C) wet bulb; without low ambient controls or auxiliary heat source.~~

- G. Refrigerant Piping Lengths: Provide equipment capable of serving system with following piping lengths without any oil traps:

- 1. Minimum Piping Length from Outdoor/Central Unit(s) to Furthest Terminal Unit: 540 feet (165 m), actual; 620 feet (189 m), equivalent.
 - 2. Total Combined Liquid Line Length: 3280 feet (1000 m), minimum.
 - 3. Minimum Piping Length Between Indoor Units: 49 feet (15 mm).
- C H. Control Wiring Lengths:
- 1. Between Outdoor/Condenser Unit and Indoor/Evaporator Unit: 6,665 feet (2031 m), minimum.
 - 2. Between Outdoor/Condenser Unit and Central Controller: 3,330 feet (1015 m), minimum.
 - 3. Between Indoor/Evaporator Unit and Remote Controller: 1,665 feet (507 m).
- C I. Controls: Provide the following control interfaces:
- 1. For Each Indoor/Evaporator Unit: One wall-mounted wired "local" controller, with temperature sensor; locate where indicated.
 - 2. _____ wireless remote controllers for _____.
 - 3. Remote, multizone on/off control panels sufficient to control all units; locate where indicated.
 - 4. One central remote control panel for entire system; locate where indicated.
 - 5. One time clock control panel for entire system; locate where indicated.
 - 6. ~~LonWorks~~ gateways sufficient to connect all units to building automation system by others; include wiring to gateways.
 - 7. The building automation system by the VRV manufacturer is not specified in this section. Consult the manufacturer for details.
 - 8. Building automation system by HVAC system manufacturer ; provide one user stations located where indicated.
- D D: System has BACnet Interface. NOT Lonworks
- C J. Local Controllers: Wall-mounted, wired, containing temperature sensor.
- C K. Remote Temperature Sensors: In addition to temperature sensors integral with indoor/evaporator units, provide wall-mounted, wired remote temperature sensors located in the same room for the following:
- 1. In-ceiling mounted units.
 - 2. On-ceiling mounted units.
 - 3. Wall mounted units mounted up high.
 - 4. Air handling units.
 - 5. Concealed console units.
 - 6. Exposed console units
 - 7. Exception: Where a local controller with temperature sensor is provided for the particular unit and is located in the same space.

2.03 EQUIPMENT

- C A. All Units: Factory assembled, wired, and piped and factory tested for function and safety.
- 1. Refrigerant: R-410A.
 - 2. Performance Certification: AHRI Certified; www.ahrinet.org.
 - 3. Safety Certification: Tested to UL 1995 by UL or Intertek-ETL and bearing the certification label.
 - 4. Provide outdoor/condensing units capable of serving indoor unit capacity up to 200 percent of the capacity of the outdoor/condensing unit.
 - 5. Provide units capable of serving the zones indicated.
 - 6. Thermal Performance: Provide heating and cooling capacity as indicated, based on the following nominal operating conditions:
 - a. Cooling: Indoor air temperature of 80 degrees F (27 degrees C) dry bulb, 67 degrees F (14 degrees C) wet bulb; outdoor air temperature of 95 degrees F (35 degrees C) dry bulb; and 25 feet (8 m)
 - b. Heating: Outdoor air temperature of 47 degrees F (8 degrees C) dry bulb, 43 degrees F (6 degrees C) wet bulb; indoor air temperature of 70 degrees F (21 degrees C) dry bulb; and 25 feet (8 m)

- C 7. Energy Efficiency: Report EER, IEER and COP based on tests conducted at "full load" in accordance with AHRI 1230 or alternate test method approved by U.S. Department of Energy.

C 8. Outdoor Units: Units and their supports designed and installed to resist wind pressures defined in ASCE 7. C: Supports Provided by others

C B. Electrical Characteristics:

D 1. Power - Condensing Units: 460 Volts, 3-phase, 60 Hz.

C 2. ~~Power - Branch Selector Units. 208 to 230 Volts, single phase, 60 Hz.~~ D: Branch Selectors not provided in Heat Pump System

C 3. Power - Indoor Units: 208 to 230 Volts, single phase, 60 Hz.

C 4. 208-230 Voltage Range: 187 to 253 volts.

C 5. Control: 18 volts DC.

C C. System Controls:

D 1. Include self diagnostic, auto-check functions to detect malfunctions and display the type and location. D: Centralized control panel provided by controls.

D D. Remote Centralized Control Panel:

D E. Remote On/Off Control Panel: D: See above

D F. Time Clock Panel: D: See above

C G. Unit Controls: As required to perform input functions necessary to operate system; provided by manufacturer of units.

C 1. Provide interfaces to remote control and building automation systems as specified. C (BACNET)

C 2. Outside air capability.

C H. Wiring:

C 1. Control Wiring: 18 AWG, 2-conductor, non-shielded, non-polarized, stranded cable.

C 2. Control Wiring Configuration: Daisy chain.

C I. Refrigerant Piping:

C 1. Provide three-pipe refrigerant system, including high/low pressure dedicated hot gas, liquid and suction lines; two-pipe systems utilizing lower temperature mixed liquid/gas refrigerant to perform heat recovery are not permitted due to reduced heating capabilities.

C 2. Refrigerant Flow Balancing: Provide refrigerant piping joints and headers specifically designed to ensure proper refrigerant balance and flow for optimum system capacity and performance; T-style joints are prohibited.

C 3. Insulate each refrigerant line individually between the condensing and indoor units.

2.04 OUTDOOR/CONDENSING UNITS

- A. Outdoor/Condensing Units: Air-cooled DX refrigeration units, designed specifically for use with indoor/evaporator units; factory assembled and wired with all necessary electronic and refrigerant controls; modular design for ganging multiple units.
 - 1. Refrigeration Circuit: Scroll compressors, motors, fans, condenser coil, electronic expansion valves, solenoid valves, 4-way valve, distribution headers, capillaries, filters, shut off valves, oil separators, service ports and refrigerant regulator.
 - 2. Refrigerant: Factory charged.
 - 3. Variable Volume Control: Modulate compressor capacity automatically to maintain constant suction and condensing pressures while varying refrigerant volume to suit heating/cooling loads.
 - 4. Capable of being installed with wiring and piping to the left, right, rear or bottom.
 - 5. Capable of heating operation at low end of operating range as specified, without additional low ambient controls or auxiliary heat source; during heating operation, reverse cycle (cooling mode) oil return or defrost is not permitted, due to potential reduction in space temperature.
 - 6. Sound Pressure Level: As specified, measured at 3 feet (one meter) from front of unit; provide night setback sound control as a standard feature; three selectable sound level steps of 55 dB, 50 dB, and 45 dB, maximum.

- C 7. Power Failure Mode: Automatically restart operation after power failure without loss of programmed settings.
- C 8. Provide refrigerant auto-charging feature and refrigerant charge check function.
- C 9. Safety Devices: High pressure sensor and switch, low pressure sensor/switch, control circuit fuses, crankcase heaters, fusible plug, overload relay, inverter overload protector, thermal protectors for compressor and fan motors, over current protection for the inverter and anti-recycling timers.
- C 10. Provide refrigerant sub-cooling to ensure the liquid refrigerant does not flash when supplying to us indoor units.
- C 11. Oil Recovery Cycle: Automatic, occurring 2 hours after start of operation and then every 8 hours of operation; maintain continuous heating during oil return operation.
- C 12. Controls: Provide contacts for electrical demand shedding.
- B. Unit Cabinet: Weatherproof and corrosion resistant; rust-proofed mild steel panels coated with baked enamel finish.
 - 1. Designed to allow side-by-side installation with minimum spacing.
 - 2. Size: Module footprint of 37 inches (940 mm) by 31 inches (787 mm), maximum.
- C. Fans: One or more direct-drive propeller type, vertical discharge, with multiple speed operation via DC (digitally commutating) inverter.
 - 1. Provide minimum of 2 fans for each condensing unit.
 - 2. External Static Pressure: Factory set at 0.12 in WG (30 Pa), minimum.
 - 3. Indoor Mounted Air-Cooled Units: External static pressure field set at 0.32 in WG (80 Pa), minimum; provide for mounting of field-installed ducts.
 - 4. Fan Airflow: As indicated for specific equipment.
 - 5. Fan Motors: Factory installed; permanently lubricated bearings; inherent protection; fan guard; output as indicated for specific equipment.
- D. Condenser Coils: Copper tubes expanded into aluminum fins to form mechanical bond; waffle louver fin and rifled bore tube design to ensure high efficiency performance.
 - 1. Copper Tube: Hi-X seamless copper tube.
 - 2. Coil Design: N-shape internal grooves mechanically bonded on to aluminum fins to an e-Pass Design.
 - 3. Corrosion Protection: Fins coated with anti-corrosion acrylic resin and hydrophilic film type E1; pipe plates coated with powdered polyester powder coating of 2.0 to 3.0 microns thickness.
- C. E. Compressors: Scroll type, hermetically sealed, variable speed inverter-driven and fixed speed in combination to suit total capacity; minimum of one variable speed, inverter driven compressor per condenser unit; minimum of two compressors per condenser unit; capable of controlling capacity within range of 6 percent to 100 percent of total capacity.
 - 1. Multiple Condenser Modules: Balance total operation hours of compressors by means of duty cycling function, providing for sequential starting of each module at each start/stop cycle, completion of oil return, and completion of defrost, or every 8 hours.
 - 2. Failure Mode: In the event of compressor failure, operate remaining compressor(s) at proportionally reduced capacity; provide microprocessor and associated controls specifically designed to address this condition.
 - 3. Provide each compressor with crankcase heater, high pressure safety switch, and internal thermal overload protector.
 - 4. Provide oil separators and intelligent oil management system.
 - 5. Provide spring mounted vibration isolators.
 - 6. The Daikin invertor scroll compressors shall be variable speed (PVM inverter) controlled; which is capable of chnaging the speed to follow the variations in total cooling and heating load as determined by the suction gas pressure as measured in the condensing unit. In addition, samplings of evaporator and condenser temperatures shall be made so that the high/low pressures detected are read every 20 seconds and calculated. With each reading, the compressor capacity (INV frequency or STD ON/OFF) shall be controlled to eliminate deviation from target value.

- C 7. The inverter driven compressor in each condensing unit shall be of highly efficient reluctance DC (digitally commutating), hermetically sealed scroll "02-type" with a maximum speed of 7,980 rpm.
- C 8. Neodymium magnets shall be adopted in the rotor construction to yield a higher torque and efficiency in the compressor instead of normal ferrite magnet type. At complete stop of the condenser, neodymium magnets will position the rotor into the optimum position for a low torque start.
- C 9. Each non-inverter compressor shall also be of the hermetically sealed scroll type.
- C 10. Each compressor shall be equipped with a crankcase heater, high pressure safety switch, and internal thermal overload protector.
- C 11. Oil separators shall be standard with the equipment together with an intelligent oil management system.
- C 12. The compressor shall be spring mounted to avoid the transmission of vibration.
- C 13. Units sized 6-12 tons shall contain a minimum of 2 compressors. 14 ton units shall contain a minimum of 3 compressors. 16-20 ton units shall contain a minimum of 4 compressors. 22-24 ton units shall contain a minimum of 5 compressors. 26-28 ton units shall contain a minimum of 6 compressors. In the event of a compressor failure the remaining compressors shall continue to operate and provide heating or cooling as required at a proportionally reduced capacity. The microprocessor and associated controls shall be designed to specifically address this condition.

D **~~2.05 BRANCH SELECTOR UNITS~~**

D: Branch Selector units NOT provided in Heat Pump System

- A. ~~Branch Selector Units: Concealed boxes designed specifically for this type of system to control heating/cooling mode selection of downstream units; consisting of electronic expansion valves, subcooling heat exchanger, refrigerant control piping and electronics to facilitate communications between unit and main processor and between branch unit and indoor/evaporator units.~~
- 1. Control direction of refrigerant flow using electronic expansion valves; use of solenoid valves for changeover and pressure equalization is not permitted due to refrigerant noise; use of multi-port branch selector boxes is not permitted unless spare ports are provided for redundancy.
- 2. Provide one electronic expansion valve for each downstream unit served, except multiple indoor/evaporator units may be connected, provided balancing joints are used in downstream piping and total capacity is within capacity range of the branch selector.
- 3. When branch unit is simultaneously heating and cooling, energize subcooling heat exchanger.
- 4. Casing: Galvanized steel sheet; with flame and heat resistant foamed polyethylene sound and thermal insulation.
- 5. Refrigerant Connections: Braze type.
- 6. Condensate Drainage: Provide unit that does not require condensate drainage.

C **2.06 INDOOR/EVAPORATOR UNITS**

- A. All Indoor/Evaporator Units: Factory assembled and tested DX fan-coil units, with electronic proportional expansion valve, control circuit board, factory wiring and piping, self-diagnostics, auto-restart function, 3-minute fused time delay, and test run switch.
 - 1. Refrigerant: Refrigerant circuits factory-charged with dehydrated air, for field charging.
 - 2. Temperature Control Mechanism: Return air thermistor and computerized Proportional-Integral-Derivative (PID) control of superheat.
 - 3. Coils: Direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond; waffle louver fin and high heat exchange, rifled bore tube design; factory tested.
 - a. Provide thermistor on liquid and gas lines.
 - 4. Fans: Direct-drive, with statically and dynamically balanced impellers; high and low speeds unless otherwise indicated; motor thermally protected.
 - 5. Return Air Filter: Washable long-life net filter with mildew proof resin, unless otherwise indicated.

- C
 - 6. Condensate Drainage: Built-in condensate drain pan with PVC drain connection.
 - 7. Cabinet Insulation: Sound absorbing foamed polystyrene and polyethylene insulation.
- C B. Recessed Ceiling Units - 3 FT by 3 FT: Four-way airflow cassette with central return air grille, for installation in a fixed ceiling.
 - 1. Face Size: 33 inches (939 mm) square, nominal.
 - 2. Cabinet Height: Maximum of 10 inches (250 mm) above face of ceiling.
 - 3. Exposed Housing: White, impact resistant, with washable decoration panel.
 - 4. Supply Airflow Adjustment:
 - a. Via motorized louvers which can be horizontally and vertically adjusted from 0 to 90 degrees.
 - b. Field-modifiable to 3-way and 2-way airflow.
 - c. Three auto-swing positions, including standard, draft prevention and ceiling stain prevention.
 - 5. Return Air Filter: Manufacturer's standard.
 - 6. Minimum Capacity: As indicated on the drawings.
 - 7. Sound Pressure Range: Between 28 dB(A) to 33 dB(A) at low speed measured at 5 feet (1.5 m) below the unit.
 - 8. Fan: Direct-drive turbo type, with motor output range of 0.06 to 0.12 HP (45 to 90 W).
 - 9. Condensate Pump: Built-in, with lift of 21 inches (533 mm), minimum.
 - 10. Provide side-mounted supply air branch duct connection.
 - 11. Provide side-mounted fresh air intake duct connection.

D: 2x2 units not scheduled for project
- D C. ~~Recessed Ceiling Units - 2 FT by 2 FT. Four-way airflow cassette with central return air grille, sized for installation in standard 24 by 24 inch (610 by 610 mm) lay-in ceiling grid.~~
 - 1. Cabinet Height: Maximum of 12 inches (305 mm) above face of ceiling.
 - 2. Exposed Housing: White, impact resistant, with washable decoration panel.
 - 3. Maintenance Access: All electrical components accessible through decoration panel.
 - 4. Supply Airflow Adjustment:
 - a. Via motorized louvers which can be horizontally and vertically adjusted from 0 to 90 degrees.
 - b. Field-modifiable to 3-way and 2-way airflow.
 - c. Three auto-swing positions, including standard, draft prevention and ceiling stain prevention.
 - 5. Sound Pressure: Measured at low speed at 5 feet (1.5 m) below unit.
 - 6. Fan: Direct-drive turbo type.
 - 7. Condensate Pump: Built-in, with lift of 21 inches (533 mm), minimum.
 - 8. Provide side-mounted supply air branch duct connection.
 - 9. Provide side-mounted fresh air intake duct connection.

D: Concealed in ceiling units not scheduled
- D D. ~~Concealed In Ceiling Units: Ducted horizontal discharge and return, galvanized steel cabinet.~~
 - 1. Return Air Filter: Manufacturer's standard.
 - 2. Sound Pressure: Measured at low speed at 5 feet (1.5 m) below unit.
 - 3. Provide external static pressure switch adjustable for high efficiency filter operation
 - 4. Condensate Pump: Built-in, with lift of 9 inches (229 mm), minimum.
 - 5. Switch box accessible from side or bottom.

D: Ceiling Surface-mounted not scheduled
- D E. ~~Ceiling Surface Mounted Units: White, finished casing, with removable front grille, foamed polystyrene and polyethylene sound insulation, and mounting brackets; mildew-proof polystyrene drain pan.~~
 - 1. Airflow Control: Auto-swing louver that closes automatically when unit stops; five (5) steps of discharge angle, set using remote controller; upon restart, discharge angle defaulting to same angle as previous operation.
 - 2. Sound Pressure Range: Measured at low speed at 3.3 feet (one meter) below and away from unit.
 - 3. Fan: Two-speed, direct-drive cross-flow type.

- C F. Wall Surface-Mounted Units: Finished white casing, with removable front grille; foamed polystyrene and polyethylene sound insulation; wall mounting plate; polystyrene condensate drain pan.
1. Airflow Control: Auto-swing louver that closes automatically when unit stops; five (5) steps of discharge angle, set using remote controller; upon restart, discharge angle defaulting to same angle as previous operation.
 2. Sound Pressure Range: Measured at low speed at 3.3 feet (one meter) below and away from unit.
 3. Condensate Drain Connection: Back, with piping concealed in wall.
 4. Fan: Direct-drive cross-flow type.
- D: Exposed console units not scheduled
- D G. ~~Exposed Console Units: Top discharge grille, bottom return air, finished casing,~~ sound-insulated with fiberglass urethane foam; auto-swing louver that closes automatically when unit stops.
1. Maintenance Access Required: Not more than 3/4 inch (19 mm) in rear, 4 inch (102 mm) on each side.
 2. Sound Pressure Range: Measured at high speed at 5 feet (1.5 m) away and 5 feet (1.5 m) above floor.
 3. Fan: Sirocco type.
- D: Concealed console units not scheduled
- D H. ~~Concealed Console Units: Top discharge grille, bottom return air; unfinished casing,~~ sound-insulated with fiberglass urethane foam; auto-swing louver that closes automatically when unit stops.
1. Maintenance Access Required: Not more than 3/4 inch (19 mm) in rear, 4 inch (102 mm) on each side.
 2. Sound Pressure Level: Measured at high speed measured at 5 feet (1.5 m) away and 5 feet (1.5 m) above floor.
 3. Fan: Sirocco type.
- D: AHU FCU Type not scheduled
- D I. ~~Air Handling Units: Factory painted heavy gage steel casing insulated with sound absorbing foil faced insulation.~~
1. Secondary condensate drain pan; field installed.
 2. Fan: Direct-drive ECM type fan with automatic airflow adjustment.
 3. Provide air filter.
 4. External insulation; field installed.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that required electrical services have been installed and are in the proper locations prior to starting installation.
- B. Verify that condensate piping has been installed and is in the proper location prior to starting installation.
- C. Notify Design Professional if conditions for installation are unsatisfactory.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install refrigerant piping in accordance with equipment manufacturer's instructions.
- C. Perform wiring in accordance with NFPA 70, National Electric Code (NEC).
- D. Coordinate with installers of systems and equipment connecting to this system.

3.03 FIELD QUALITY CONTROL

- A. Provide manufacturer's field representative to inspect installation prior to startup.

3.04 SYSTEM STARTUP

- A. Provide manufacturer's certified technician to perform system startup.

- B. Prepare and start equipment and system in accordance with manufacturer's instructions and recommendations.
- C. Adjust equipment for proper operation within manufacturer's published tolerances.
- D. Start-up system reports shall be included in closeout documents.
- E. Four hours of Service Checker Data shall be recorded in accordance to manufacturer recommendations to insure proper installation.

3.05 PRESSURE TESTING AND VACUUMING REFRIGERANT PIPING

- A. Three Step System Pressure Test: 3 min @ 150 psi, 5 min @ 325 psi and 24 hr @ 550 psi.
- B. Vacuum pressure readings must be verified by a third party inspector, not the mechanical contractor.
- C. Provide a triple evacuation of the system using dry nitrogen to break the vacuum. The third and final vacuum should be pulled to 300 micron and hold for 1 hour before additional refrigerant can be added.

3.06 CLEANING

- A. Clean exposed components of dirt, finger marks, and other disfigurements.

3.07 COMMISSIONING

- A. See Section 01 9113 for commissioning requirements.
- B. Perform commissioning as specified in Section 23 0800.
- C. Perform the following Functional Tests:

3.08 CLOSEOUT ACTIVITIES

- A. See Section 01 7800 - Closeout Submittals, for closeout submittals.
- B. See Section 01 7900 - Demonstration and Training, for additional requirements.
- C. Demonstrate proper operation of equipment to Owner's designated representative.
- D. Demonstration: Demonstrate operation of system to Owner's personnel.
 - 1. Use operation and maintenance data as reference during demonstration.
 - 2. Briefly describe function, operation, and maintenance of each component.
- E. Training: Train Owner's personnel on operation and maintenance of system.
 - 1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
 - 2. Provide minimum of two hours of training.
 - 3. Instructor: Manufacturer's training personnel.
 - 4. Location: At project site.

3.09 PROTECTION

- A. Protect installed components from subsequent construction operations.
- B. Replace exposed components broken or otherwise damaged beyond repair.

3.10 MAINTENANCE

- A. See Section 01 7000 - Execution Requirements, for additional requirements relating to maintenance service.

END OF SECTION



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VRV SPECIFICATIONS



Section 238129

Daikin AC Model Number:

**RXYQ72PBYD
RXYQ96PBYD
RXYQ120PBYD
RXYQ144PBYD (2x RXYQ72PBYD)**

Part 1 – GENERAL

VARIABLE REFRIGERANT VOLUME (VRVIII) AIR CONDITIONING SPECIFICATION – Heat Pump

1.01 SYSTEM DESCRIPTION

The variable capacity, heat pump air conditioning system will be a Daikin Variable Refrigerant Volume Series (heat or cool model) split system as specified. The system will consist of multiple evaporators, REFNET™ joints and headers, a two-pipe refrigeration distribution system using PID control and Daikin VRV® condenser unit. The condenser will be a direct expansion (DX), air-cooled heat pump, multi-zone air-conditioning system with variable speed inverter driven compressors using R-410A refrigerant. The condensing unit may connect an indoor evaporator capacity up to 200% of the condensing unit capacity. All zones are each capable of operating separately with individual temperature control.

The Daikin condensing unit will be interconnected to indoor unit models FXFQ, and FXAQ and will range in capacity in accordance with Daikin's engineering data book detailing each available indoor unit. The indoor units will be connected to the condensing unit utilizing Daikin's REFNET™ specified piping joints and headers to ensure correct refrigerant flow and balancing. T style joints are not acceptable.

Operation of the system will permit either cooling or heating of all of the indoor units simultaneously. Each indoor unit or group of indoor units will be able to provide set temperature independently via a local remote controller, an Intelligent Controller, an Intelligent Manager or a BMS interface.

The RXYQ condensing unit model numbers and the associated number of connectable indoor units per RXYQ condensing unit is indicated in the following table. Each indoor unit or group of indoor units will be independently controlled.

Model Number	Nominal Capacity (Tons)	Number of Connectable Indoor Units
RXYQ72PBYD	6	12
RXYQ96PBYD	8	16
RXYQ120PBYD	10	20
RXYQ144PBYD	12	25

1.02 VRVIII FEATURES AND BENEFITS

- A. Voltage Platform – Heat pump condensing units will be available with a 460V/3/60 power supply.
- B. Advanced Zoning – A single system will provide for up to 62 zones.
- C. Autocharging – Each system will have a refrigerant auto-charging function.
- D. Oil Return Heating – Each system will maintain continuous heating during oil return operation. Reverse cycle (cooling mode) oil return during heating operation will not be permitted due to the potential reduction in space temperature.
- E. Independent Control – Each indoor unit will use a dedicated electronic expansion valve for independent control.
- F. VFD Inverter Control – Each condensing unit will use a high efficiency, variable speed “inverter” compressor coupled with inverter fan motors for superior part load performance.
Compressor capacity will be modulated automatically to maintain constant suction and condensing pressures while varying the refrigerant volume for the needs of the cooling or heating loads.
Indoor units will use PID to control superheat to deliver a comfortable room temperature condition and optimize efficiency.
- G. Flexible Design –
 - 1. Systems will be capable of up to 540ft (640ft equivalent) of linear piping between the condensing unit and furthest located indoor unit.
 - 2. Systems will be capable of up to 3,280ft total “one-way” piping in the piping network.
 - 3. Systems will have a vertical (height) separation of up to 295ft between the condensing unit and the indoor units.
 - 4. Systems will be capable of up to 295ft from the first REFNET™ / branch point.
 - 5. The condensing unit will have the ability to connect an indoor unit evaporator capacity of up to 200% of the condensing unit capacity.
 - 6. Systems will be capable of 49ft between indoor units.
 - 7. Condensing units will be supported with a fan motor ESP up to 0.32" WG as standard to allow connection of discharge ductwork and to prevent discharge air short circuiting.
- H. Simple Wiring – Systems will use 16/18 AWG, 2 wire, multi-stranded, non-shielded and non-polarized daisy chain control wiring.
- I. Energy Efficiency – System will have equivalent or better performance than high efficiency air cooled or water cooled chiller systems.
- J. Outside Air – Systems will provide outside air capability.
- K. Space Saving – Each system will have a condensing unit module footprint as small as 3' 5/8" x 2' 6/18" (7.66sq ft).
- L. Advanced Diagnostics – Systems will include a self diagnostic, auto-check function to detect a malfunction and display the type and location.
- M. Each condensing unit will incorporate contacts for electrical demand shedding.
- N. Advanced Controls – Each system will have at least one remote controller capable of controlling up to 16 indoor units.
Each system will be capable of integrating with open protocol BACnet and LonWorks building management systems.



- O. Low Sound Levels – Each system will use indoor and condensing units with quiet operation as low as 27 dB(A).
- 1.03 **QUALITY ASSURANCE**
 - A. The units will be tested by a Nationally Recognized Testing Laboratory (NRTL), in accordance with ANSI/UL 1995 – Heating and Cooling Equipment and bear the Listed Mark.
 - B. All wiring will be in accordance with the National Electric Code (NEC).
 - C. The system will be produced in an ISO 9001 and ISO 14001 facility, which are standards set by the International Standard Organization (ISO). The system will be factory tested for safety and function.
 - D. Mechanical equipment for wind-born debris regions will be designed in accordance with ASCE 7-2010 and installed to resist the wind pressures on the equipment and the supports.
 - E. The condensing unit will be factory charged with R410A.
- 1.04 **DELIVERY, STORAGE AND HANDLING**
 - A. Unit will be stored and handled according to the manufacturer's recommendations.

Part 2 – WARRANTY

- 2.01 **STANDARD LIMITED WARRANTY**

Daikin AC (Americas), Inc. ("Daikin AC") warrants to the customer who is the original owner and user of the Daikin AC products specified above ("Customer") that under normal use and maintenance for comfort cooling and conditioning applications such products (the "Products") will be free from defects in material or workmanship. This warranty applies to parts only and is limited in duration to one (1) year from the earlier to occur of (a) the date of original installation, whether or not actual use begins on that date, or (b) eighteen (18) months from the date of shipment by Daikin AC. Customer will present proof of the original date of receipt and of installation of the Product in order to establish the effective date of this warranty. Otherwise the effective date will be deemed to be the date of manufacture plus sixty (60) days. Repaired or replacement parts are warranted for the balance of the warranty period applicable to the original part following the date on which the repaired or replacement part is provided to the Customer.
- 2.02 **EXTENDED WARRANTY**

For its compressors only, Daikin AC provides the above warranty (which is applicable to parts only) for a seven (7) year period. This extended warranty for compressors is limited in duration to seven (7) years from the earlier to occur of (a) the date of original installation, whether or not actual use begins on that date, or (b) eighteen (18) months from the date of shipment by Daikin AC, and applies to the compressor and compressor parts only. The effective date of this extended warranty will be established as above.
- 2.03 **INSTALLATION REQUIREMENTS**

The system will be installed by a Daikin factory trained contractor/dealer. The bidders will be required to submit training certification proof with bid documents.



The mechanical contractor's installation price will be based on the systems installation requirements. The mechanical contractor bids with complete knowledge of the HVAC system requirements.

Part 3 – PERFORMANCE

3.01 The VRVIII RXYQ system will perform as indicated below.

Model Number	System IEER* (part load - ducted)	System IEER* (part load – non-ducted)	System IEER* (part load - mixed)
RXYQ72PBYD	21.5	25.8	23.7
RXYQ96PBYD	18.8	23.0	20.9
RXYQ120PBYD	17.2	20.4	18.8
RXYQ144PBYD	22.1	21.5	21.8

Model Number	System EER* (full load - ducted)	System EER* (full load – non-ducted)	System EER* (full load - mixed)
RXYQ72PBYD	12.8	14.1	13.4
RXYQ96PBYD	12.5	13.5	13.0
RXYQ120PBYD	11.9	12.5	12.2
RXYQ144PBYD	12.7	14.0	13.4

Model Number	System COP@47F* (full load - ducted)	System COP@47F* (full load – non-ducted)	System COP@47F* (full load - mixed)
RXYQ72PBYD	3.71	4.00	3.86
RXYQ96PBYD	3.65	4.20	3.93
RXYQ120PBYD	3.63	3.80	3.72
RXYQ144PBYD	3.70	3.90	3.80

Model Number	System COP@17F* (full load - ducted)	System COP@17F* (full load – non-ducted)	System COP@17F* (full load - mixed)
RXYQ72PBYD	2.40	2.65	2.53
RXYQ96PBYD	2.50	2.85	2.68
RXYQ120PBYD	2.50	2.65	2.58
RXYQ144PBYD	2.45	2.55	2.50

Performance Conditions:

Cooling: indoor temp. of 80°F DB, 67°F WB and outdoor temp. of 95°F DB.

Heating: indoor temp. of 70°F DB and outdoor temp. of 47°F DB, 43°F WB.

Equivalent piping length: 25ft

* The system IEER, EER and COP values for systems sized 300MBH and smaller are certified to AHRI Std. 1230. Systems sized larger than 300MBH are rated to AHRI Std. 1230.

3.02 OPERATING RANGE

The operating range in cooling will be 23°F DB ~ 122°F DB.



The operating range in heating will be 0°F DB – 77°F DB / -4°F WB – 60°F WB.

Cooling mode indoor room temperature range will be 57°F-77°F WB.

Heating mode indoor room temperature range will be 59°F-80°F DB.

3.03 REFRIGERANT PIPING

The system will be capable of refrigerant piping up to 540 actual feet or 620 equivalent feet from the condensing unit to the furthest indoor unit, a total combined liquid line length of 3,280 feet of piping between the condensing and indoor units with 295 feet maximum vertical difference, without any oil traps. REFNET™ piping joints and headers will be used to ensure proper refrigerant balance and flow for optimum system capacity and performance. T style joints will not be acceptable as this will negatively impact proper refrigerant balance and flow for optimum system capacity and performance.

Part 4 – PRODUCTS

4.01 CONDENSING UNIT

- A. General: The condensing unit is designed specifically for use with VRVIII series components.
 1. The condensing unit will be factory assembled and pre-wired with all necessary electronic and refrigerant controls. The refrigeration circuit of the condensing unit will consist of Daikin scroll compressors, motors, fans, condenser coil, electronic expansion valves, solenoid valves, 4-way valve, distribution headers, capillaries, filters, shut off valves, oil separators, service ports and refrigerant regulator. Liquid and suction lines will be individually insulated between the condensing and indoor units.
 2. The condensing unit can be wired and piped with access from the left, right, rear or bottom.
 3. The connection ratio of indoor units to condensing unit will be permitted up to 200%.
 4. Each condensing system will be able to support the connection of up to 59 indoor units dependant on the model of the condensing unit.
 5. The sound pressure level standard will be that value as listed in the Daikin engineering manual for the specified models at 3 feet from the front of the unit. The condensing unit will be capable of operating automatically at further reduced noise during night time.
 6. The system will automatically restart operation after a power failure and will not cause any settings to be lost, thus eliminating the need for reprogramming.
 7. The unit will incorporate an auto-charging feature.
 8. The condensing unit will be modular in design and should allow for side-by-side installation with minimum spacing.
 9. The following safety devices will be included on the condensing unit; high pressure sensor and switch, low pressure switch, control circuit fuses, crankcase heaters, fusible plug, overload relay, inverter overload protector, thermal protectors for compressor and



fan motors, over current protection for the inverter and anti-recycling timers.

10. To ensure the liquid refrigerant does not flash when supplying to the various indoor units, the circuit will be provided with a sub-cooling feature.
 11. Oil recovery cycle will be automatic occurring 2 hours after start of operation and then every 8 hours of operation. Each system will maintain continuous heating during oil return operation. Reverse cycle (cooling mode) oil return during heating operation will not be permitted due to the potential reduction in space temperature.
 12. The condensing unit will be capable of heating operation at 0°F dry bulb ambient temperature without additional low ambient controls or an auxiliary heat source.
- B. Unit Cabinet:
1. The condensing unit will be completely weatherproof and corrosion resistant. The unit will be constructed from rust-proofed mild steel panels coated with a baked enamel finish.
- C. Fan:
1. The condensing unit will consist of one or more propeller type, direct-drive 350 or 750 W fan motors that have multiple speed operation via a DC (digitally commutating) inverter.

Model Number	Fan Motor Output (W) & Quantity
RXYQ72PBYD	750 x 1
RXYQ96PBYD	350 x 2
RXYQ120PBYD	350 x 2
RXYQ144PBYD	750 x 2

2. The condensing unit fan motor will have multiple speed operation of the DC (digitally commutating) inverter type, and be of high external static pressure and will be factory set as standard at 0.12 in. WG. A field setting switch to a maximum 0.32 in. WG pressure is available to accommodate field applied duct for indoor mounting of condensing units.
3. The fan will be a vertical discharge configuration with a nominal airflow maximum range of 6,350 CFM to 24,690 CFM dependent on model specified.
4. Nominal sound pressure levels will be as shown below.

Model Number	Sound Pressure Level dB(A)
RXYQ72PBYD	57
RXYQ96PBYD	60
RXYQ120PBYD	60
RXYQ144PBYD	60

5. The fan motor will have inherent protection and permanently lubricated bearings and be mounted.
6. The fan motor will be provided with a fan guard to prevent contact with moving parts.

7. Night setback control of the fan motor for low noise operation by way of automatically limiting the maximum speed will be a standard feature. Operation sound level will be selectable from 3 steps as shown below.
- D. Condenser Coil:
1. The condenser coil will be manufactured from copper tubes expanded into aluminum fins to form a mechanical bond.
 2. The heat exchanger coil will be of a waffle louver fin and rifled bore tube design to ensure high efficiency performance.
 3. The heat exchanger on the condensing units will be manufactured from Hi-X seamless copper tube with N-shape internal grooves mechanically bonded on to aluminum fins to an e-Pass Design.
 4. The fins are to be covered with an anti-corrosion acrylic resin and hydrophilic film type E1.
 5. The pipe plates will be treated with powdered polyester resin for corrosion prevention. The thickness of the coating will be between 2.0 to 3.0 microns.
- E. Compressor:
1. The Daikin inverter scroll compressors will be variable speed (PVM inverter) controlled which is capable of changing the speed to follow the variations in total cooling and heating load as determined by the suction gas pressure as measured in the condensing unit. In addition, samplings of evaporator and condenser temperatures will be made so that the high/low pressures detected are read every 20 seconds and calculated. With each reading, the compressor capacity (INV frequency or STD ON/OFF) will be controlled to eliminate deviation from target value.
 2. The inverter driven compressor in each condensing unit will be of highly efficient reluctance DC (digitally commutating), hermetically sealed scroll "G2-type" with a maximum speed of 7,980 rpm.
 3. Neodymium magnets will be adopted in the rotor construction to yield a higher torque and efficiency in the compressor instead of the normal ferrite magnet type. At complete stop of the compressor, the neodymium magnets will position the rotor into the optimum position for a low torque start.
 4. The capacity control range will be as low as 4% to 100%.
 5. Each non-inverter compressor will also be of the hermetically sealed scroll type.
 6. Each compressor will be equipped with a crankcase heater, high pressure safety switch, and internal thermal overload protector.
 7. Oil separators will be standard with the equipment together with an intelligent oil management system.
 8. The compressor will be spring mounted to avoid the transmission of vibration.
 9. Units sized 6 tons will contain a minimum of 1 compressor. 8-12 ton units will contain a minimum of 2 compressors. 14-16 ton units will contain a minimum of 3 compressors. 18-20 ton units will contain a minimum of 4 compressors. 22-26 ton units will contain a minimum of 5 compressors. 28-30 ton units will contain



a minimum of 6 compressors. In the event of compressor failure the remaining compressors will continue to operate and provide heating or cooling as required at a proportionally reduced capacity. The microprocessor and associated controls will be designed to specifically address this condition.

Tonnage	Number of Compressors	Compressor Types
6	1	1 inverter
8	2	1 inverter + 1 fixed
9	2	1 inverter + 1 fixed
12	4	(1 inverter) x 2

10. In the case of multiple condenser modules, conjoined operation hours of the compressors will be balanced by means of the Duty Cycling Function, ensuring sequential starting of each module at each start/stop cycle, completion of oil return, completion of defrost or every 8 hours.

F. Electrical:

1. The power supply to the condensing unit will be 460 volts, 3 phase, 60 hertz +/- 10%.

Power Supply Voltage	Voltage Range
460V/3/60	416V-508V

Model	MCA	MOP	Compressor RLA
RXYQ72PBYD	16	20	7.1
RXYQ96PBYD	21	25	3.9 + 8.4
RXYQ120PBYD	21	25	5.4 + 8.4
RXYQ144PBYD	16 + 16	20 + 20	(7.1) x 2

2. The control voltage between the indoor and condensing unit will be 16VDC non-shielded, stranded 2 conductor cable.
3. The control wiring will be a two-wire multiplex transmission system, making it possible to connect multiple indoor units to one condensing unit with one 2-cable wire, thus simplifying the wiring installation.
4. The control wiring lengths will be as shown below.

	Condenser to Indoor Unit	Condenser to Central Controller	Indoor Unit to Remote Control
Control Wiring Length	6,665 ft	3,330 ft	1,665 ft
Wire Type	16/18 AWG, 2 wire, non-polarity, non-shielded, stranded		

4.02 VRV INDOOR UNITS

Daikin AC Model Number:



FXFQ INDOOR UNIT – ROUND FLOW CEILING CASSETTE UNIT (3'x3')
FXZQ INDOOR UNIT – 4 WAY CEILING CASSETTE UNIT (2'x2')
FXMQ_M INDOOR UNIT – CONCEALED CEILING DUCTED UNIT (Med.

Static)

FXMQ_P INDOOR UNIT – CONCEALED CEILING DUCTED UNIT (Med.

Static)

FXDQ INDOOR UNIT – SLIM DUCT CONCEALED CEILING UNIT

FXHQ INDOOR UNIT – CEILING SUSPENDED CASSETTE UNIT

FXAQ INDOOR UNIT – WALL MOUNTED UNIT

FXLQ INDOOR UNIT – FLOOR CONSOLE UNIT

FXNQ INDOOR UNIT – FLOOR CONSOLE CONCEALED UNIT

FTXQ INDOOR UNIT – VERTICAL AIR HANDLING UNIT

FXMQ_MF INDOOR UNIT – OUTSIDE AIR PROCESSING UNIT

Part 1 – GENERAL

**VARIABLE REFRIGERANT VOLUME (VRV / VRV-S) AIR CONDITIONING
SPECIFICATION – Heat Recovery/Heat Pump Indoor Units**

1.01 QUALITY ASSURANCE

- A. The units will be tested by a Nationally Recognized Testing Laboratory (NRTL), in accordance with ANSI/UL 1995/CAN/CSA-C22.2 No. 236-05 (R2009) – Heating and Cooling Equipment and bear the Listed Mark.
- B. All wiring will be in accordance with the National Electric Code (NEC)/Canadian Electrical Code (CEC).
- C. The system will be produced in an ISO 9001 and ISO 14001 facility, which are standards set by the International Standard Organization (ISO). The system will be factory tested for safety and function.
- D. The outdoor unit will be factory charged with R-410A.

1.02 DELIVERY, STORAGE AND HANDLING

- A. Unit will be stored and handled according to the manufacturer's recommendations.

Part 4 – PRODUCTS

2.01 FXFQ – ROUND FLOW CEILING CASSETTE UNIT (3'x3')

- A. General: Daikin indoor unit model FXFQ will be a round flow ceiling cassette fan coil unit, operable with R-410A refrigerant, equipped with an electronic expansion valve, for installation into the ceiling cavity equipped with an air panel grill. It will be available in capacities from 9,500 Btu/h to 48,000 Btu/h. Model numbers are, FXFQ12PVJU, , FXFQ36PVJU, FXFQ48PVJU to be connected to outdoor unit model RXYQ heat pump model. It will be a round flow air distribution type, fresh white, impact resistant with a washable decoration panel. The supply air is distributed via motorized louvers which can be horizontally and vertically adjusted from 0° to 90°. Computerized PID control will be used to control superheat to deliver a comfortable room temperature condition. The unit will be equipped with a programmed drying mechanism that dehumidifies while limiting changes in room



temperature when used with Daikin remote control BRC1E72 and BRC2A71. The indoor units sound pressure will range from 27 dB(A) to 34 dB(A) at low speed measured at 5 feet below the unit.

- B. Performance: Each unit's performance is based on nominal operating conditions:

C. Indoor Unit:

1. The Daikin indoor unit FXFQ will be completely factory assembled and tested. Included in the unit is factory wiring, piping, electronic proportional expansion valve, control circuit board, fan motor

Model Number	Cooling (Indoor 80°F DB / 67°F WB, Outdoor 95°F DB, 25 ft pipe length)	Heating (Indoor 47°F DB / 43°F WB, Outdoor 70°F DB, 25 ft pipe length)
FXFQ12PVJU	12,000	13,500
FXFQ36PVJU	36,000	40,000
FXFQ48PVJU	48,000	54,000

thermal protector, flare connections, condensate drain pan, condensate drain pump, condensate safety shutoff and alarm, self-diagnostics, auto-restart function, 3-minute fused time delay, and test run switch.

2. Indoor unit and refrigerant pipes will be charged with dehydrated air prior to shipment from the factory.
3. Both refrigerant lines will be insulated from the outdoor unit.
4. The round flow supply air flow can be field modified to 23 different airflow patterns to accommodate various installation configurations including corner installations.
5. Return air will be through the concentric panel, which includes a resin net, mold resistant, antibacterial filter.
6. The indoor units will be equipped with a condensate pan with antibacterial treatment and condensate pump. The condensate pump provides up to 33-1/2" of lift and has a built in safety shutoff and alarm.
7. The indoor units will be equipped with a return air thermistor.
8. The indoor unit will be separately powered with 208~230V/1-phase/60Hz.
9. The voltage range will be 253 volts maximum and 187 volts minimum.

D. Unit Cabinet:

1. The cabinet will be space saving and will be located into the ceiling.
2. Three auto-swing positions will be available to choose, which include standard, draft prevention and ceiling stain prevention.
3. The airflow of the unit will have the ability to shut down outlets with multiple patterns allowing for simpler installation in irregular spaces.
4. Fresh air intake will be possible by way of Daikin's optional fresh air intake kit.
5. A branch duct knockout will exist for branch ducting of supply air.



6. The cabinet will be constructed with sound absorbing foamed polystyrene and polyethylene insulation.
 7. Optional high efficiency MERV 13 air filters are available for each model unit.
- E. Fan:
1. The fan will be direct-drive turbo fan type with statically and dynamically balanced impeller with three fan speeds available.
 2. The fan motor will operate on 208/230 volts, 1 phase, 60 hertz with a motor output range from 0.08 to 0.16 HP.
 3. The airflow rate will be available in three settings.
 4. The fan motor will be equipped as standard with adjustable external static pressure (ESP) settings to allow operation with the Daikin MERV 13 filter options.
 5. The fan motor will be thermally protected.
- F. Filter:
1. The return air will be filtered by means of a washable long-life filter with mildew proof resin and antibacterial treatment.
 2. Optional high efficiency disposable MERV 13 filters will be available.
- G. Coil:
1. Coils will be of the direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond.
 2. The coil will be of a waffle louver fin and high heat exchange, rifled bore tube design to ensure highly efficient performance.
 3. The coil will be a 2-row cross fin copper evaporator coil with 17 FPI design completely factory tested.
 4. The refrigerant connections will be flare connections and the condensate will be 1 -1/4 inch outside diameter PVC.
 5. A condensate pan with antibacterial treatment will be located under the coil.
 6. A condensate pump with a 33-1/2 inch lift will be located below the coil in the condensate pan with a built in safety alarm.
 7. A thermistor will be located on the liquid and gas line.
- H. Electrical:
1. A separate power supply will be required of 208/230 volts, 1 phase, 60 hertz. The acceptable voltage range will be 187 to 253 volts.
 2. Transmission (control) wiring between the indoor and outdoor unit will be a maximum of 3,280 feet (total 6,560 feet).
 3. Transmission (control) wiring between the indoor unit and remote controller will be a maximum distance of 1,640 feet.
- I. Control:
1. The unit will have controls provided by Daikin to perform input functions necessary to operate the system.
 2. The unit will be compatible with interfacing with a BMS system via optional LonWorks or BACnet gateways.
 3. The unit will be compatible with a Daikin intelligent Touch advanced multi-zone controller or an intelligent Manager III customizable BMS. Consult with Daikin prior to applying controls.



- A. General: Daikin indoor unit FXAQ will be a wall mounted fan coil unit, operable with refrigerant R-410A, equipped with an electronic expansion valve, for installation onto a wall within a conditioned space. This compact design with finished white casing will be available in capacities from 7,500 Btu/h to 24,000 Btu/h. Model numbers are FXAQ07PVJU, FXAQ09PVJU, FXAQ12PVJU, FXAQ18PVJU and FXAQ24PVJU to be connected to outdoor unit model RXYQ / RXYMQ / RWEYQ heat pump and REYQ / RWEYQ heat recovery model. Computerized PID control will be used to control superheat to deliver a comfortable room temperature condition. The unit will be equipped with a programmed drying mechanism that dehumidifies while limiting changes in room temperature when used with Daikin remote control BRC1E72 and BRC2A71. A mildew-proof, polystyrene condensate drain pan and resin net mold resistant filter will be included as standard equipment. The indoor units sound pressure will range from 31 dB(A) to 41 dB(A) at low speed measured at 3.3 feet below and from the unit.
- B. Performance: Each unit's performance is based on nominal operating conditions:

Model Number	Cooling (Indoor 80°F DB / 67°F WB, Outdoor 95°F DB, 25 ft pipe length)	Heating (Indoor 47°F DB / 43°F WB, Outdoor 70°F DB, 25 ft pipe length)
FXAQ07PVJU	7,500	8,500
FXAQ09PVJU	9,500	10,500
FXAQ12PVJU	12,000	13,500
FXAQ18PVJU	18,000	20,000
FXAQ24PVJU	24,000	26,500

- C. Indoor Unit:
 1. The Daikin indoor unit FXAQ will be completely factory assembled and tested. Included in the unit is factory wiring, piping, electronic proportional expansion valve, control circuit board, fan motor thermal protector, flare connections, condensate drain pan, self-diagnostics, auto-restart function, 3-minute fused time delay, and test run switch. The unit will have an auto-swing louver which ensures efficient air distribution, which closes automatically when the unit stops. The remote controller will be able to set five (5) steps of discharge angle. The front grille will be easily removed for washing. The discharge angle will automatically set at the same angle as the previous operation upon restart. The drain pipe can be fitted to from either left or right sides.
 2. Indoor unit and refrigerant pipes will be charged with dehydrated air prior to shipment from the factory.
 3. Both refrigerant lines will be insulated from the outdoor unit.



4. Return air will be through a resin net mold resistant filter.
 5. The indoor units will be equipped with a condensate pan.
 6. The indoor units will be equipped with a return air thermistor.
 7. The indoor unit will be separately powered with 208~230V/1-phase/60Hz.
 8. The voltage range will be 253 volts maximum and 187 volts minimum.
- D. Unit Cabinet:
1. The cabinet will be affixed to a factory supplied wall mounting template and located in the conditioned space.
 2. The cabinet will be constructed with sound absorbing foamed polystyrene and polyethylene insulation.
- E. Fan:
1. The fan will be a direct-drive cross-flow fan, statically and dynamically balanced impeller with high and low fan speeds available.
 2. The fan motor will operate on 208/230 volts, 1 phase, 60 hertz with a motor output range 0.054 to 0.058 HP.
 3. The airflow rate will be available in high and low settings.
 4. The fan motor will be thermally protected.
- F. Coil:
1. Coils will be of the direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond.
 2. The coil will be of a waffle louver fin and high heat exchange, rifled bore tube design to ensure highly efficient performance.
 3. The coil will be a 2-row cross fin copper evaporator coil with 14 fpi design completely factory tested.
 4. The refrigerant connections will be flare connections and the condensate will be 11/16 inch outside diameter PVC.
 5. A thermistor will be located on the liquid and gas line.
 6. A condensate pan will be located in the unit.
- G. Electrical:
1. A separate power supply will be required of 208/230 volts, 1 phase, 60 hertz. The acceptable voltage range will be 187 to 253 volts.
 2. Transmission (control) wiring between the indoor and outdoor unit will be a maximum of 3,280 feet (total 6,560 feet).
 3. Transmission (control) wiring between the indoor unit and remote controller will be a maximum distance of 1,640 feet.
- H. Control:
1. The unit will have controls provided by Daikin to perform input functions necessary to operate the system.
 2. The unit will be compatible with interfacing with a BMS system via optional LonWorks or BACnet gateways.
 3. The unit will be compatible with a Daikin intelligent Touch advanced multi-zone controller or an intelligent Manager III customizable BMS. Consult with Daikin prior to applying controls.



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VRV SYSTEM DETAILS

Name	Model	Comb	Tmp C	CC	Rq CC	Tmp H	HC	Rq HC	Piping	Bse Refr
		%	°F	BTU/h	BTU/h	°F	BTU/h	BTU/h	ft	lbs
HP-01	RXYQ144PBYD	92	96.0	120658	111563BTU/h	47.0 / 39.4	161994	145995BTU/h	147.6	33.0
HP-02	RXYQ96PBYD	88	96.0	80161	70993BTU/h	47.0 / 39.4	107996	92997BTU/h	147.6	21.4
HP-03	RXYQ120PBYD	100	96.0	100548	99389BTU/h	47.0 / 39.4	134995	132995BTU/h	147.6	22.0
HP-04	RXYQ144PBYD	100	96.0	119744	119261BTU/h	47.0 / 39.4	161994	160994BTU/h	216.5	33.0
HP-05	RXYQ144PBYD	92	96.0	120658	111563BTU/h	47.0 / 39.4	161994	145995BTU/h	147.6	33.0
HP-06	RXYQ72PBYD	100	96.0	60051	59631BTU/h	47.0 / 39.4	80997	79997BTU/h	147.6	16.5
HP-07	RXYQ144PBYD	92	96.0	120658	111556BTU/h	47.0 / 39.4	161994	146495BTU/h	147.6	33.0



Produced on 12/23/2013 with Xpress Selection V6.5.3 - database Central_USA 9.1.5

Project name J-183 Hunmanities - Law Bldg
Reference GSU
Client name S&W
Revision 1

Selection parameters of the indoor units can be found under the chapter Indoor unit details
Selection parameters of the outdoor units can be found under the chapter Outdoor unit details
Only the data published in the data book are correct. This program uses close approximations of these data.

1. Material List

Model	Qty	Description
RXYQ120PBYD	1	Heat pump VRV P(B) R410A (460V)
RXYQ72PBYD	9	Heat pump VRV P(B) R410A (460V)
RXYQ96PBYD	1	Heat pump VRV P(B) R410A (460V)
FXAQ12PVJU	6	VRV A (P) - Wall Mounted Unit
FXAQ24PVJU	22	VRV A (P) - Wall Mounted Unit
FXFQ12PVJU	1	VRV F (R) - Round Flow Ceiling Mounted Cassette (3' x 3')
FXFQ36PVJU	3	VRV F (R) - Round Flow Ceiling Mounted Cassette (3' x 3')
FXFQ48PVJU	2	VRV F (R) - Round Flow Ceiling Mounted Cassette (3' x 3')
KHRP26A22T	7	REFNET branch piping kit
KHRP26A33T	15	REFNET branch piping kit
KHRP26M72TU	5	REFNET branch piping kit
DMS502B71	1	Interface for use in BACnet®
BRC1E72	34	Navigation Remote Controller 2013
BYCP125K-W1	6	Decoration Panel - Round Flow FXFQ-P
BHFP22P100U	4	Outdoor Multi Connection Pipe Kit - VRV P Series HP
Piping 3/8"	189.0ft	
Piping 1/2"	100.0ft	
Piping 5/8"	159.0ft	
Piping 7/8"	30.0ft	
Piping 1 1/8"	100.0ft	



2. Indoor Unit Details

2.1. Table of Abbreviations

Name	Logical name of the device
FCU	Device model name
Tmp C	Indoor conditions in cooling (dry bulb temp. / wet bulb temp.)
Rq TC	Required total cooling capacity
TC	Available total cooling capacity
Rq SC	Required sensible cooling capacity
SC	Available sensible cooling capacity
Tmp H	Indoor temperature in heating
Rq HC	Required heating capacity
HC	Available heating capacity
Suct	Suction temperature
Disch	Discharge temperature
Airflow	Supplied airflow
Sound	Sound pressure low and high
PS	Power supply (voltage and phases)
MCA	Minimum Circuit Amps
Fuses	Fuses
WxHxD	WidthxHeightxDepth
Wght	Weight of the device



2.2. HP-01 - RXYQ144PBYD

Actual capacity data at conditions and connection ratio (92%) as entered

Name	FCU	Tmp C	Rq TC	TC	Rq SC	SC	Tmp H	Rq HC	HC
		°F	BTU/h	BTU/h	BTU/h	BTU/h	°F	BTU/h	BTU/h
IU-103	FXFQ36PVJU	75.2 / 62.6	6824	30424	6824	24677	70.0	6824	39999
IU-199	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499
IU-198	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499
IU-099	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499
IU-098	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499

Discharge temperature

Name	Condition 1			Condition 2		
	Suct	Disch	Airflow	Suct	Disch	Airflow
	°F	°F	cfm	°F	°F	cfm
IU-103	64.4	88.1	1180	70.0	104.7	1180
IU-199	64.4	93.8	635	70.0	113.0	635
IU-198	64.4	93.8	635	70.0	113.0	635
IU-099	64.4	93.8	635	70.0	113.0	635
IU-098	64.4	93.8	635	70.0	113.0	635

Condition 1: The discharge temperature is calculated for an ambient temperature of 5.0°F and a room temperature of 64.4°F, as specified in the Preferences window. It also uses the maximum connection ratio of the installation and the corresponding fan speed of the indoor units.

Condition 2: The discharge temperature is calculated using the design ambient temperature 47.0°F, a room temperature of 70.0°F and an operational connection ratio of maximum 130%.

The analysis of the suction and discharge temperature values may help in preventing a cold draft and to ensure a thermal comfort level.

Please consider installing a central control/management device to enable a dual set point.

Name	Sound	PS	MCA	Fuses	WxHxD	Wght
			A		inch	lbs
IU-103		230V 1ph	1.4	15 A	33.1x11.3x33.1	66
IU-199	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31
IU-198	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31
IU-099	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31
IU-098	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31



Outdoor unit placed 164.0ft above the indoor units.
The minimum connection ratio for this height difference is 50%.



2.3. HP-02 - RXYQ96PBYD

Actual capacity data at conditions and connection ratio (88%) as entered

Name	FCU	Tmp C	Rq TC	TC	Rq SC	SC	Tmp H	Rq HC	HC
		°F	BTU/h	BTU/h	BTU/h	BTU/h	°F	BTU/h	BTU/h
IU-399	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499
IU-398	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499
IU-299	FXAQ12PVJU	75.2 / 62.6	6824	10139	6824	7814	70.0	6824	13500
IU-298	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499

Discharge temperature

Name	Condition 1			Condition 2		
	Suct	Disch	Airflow	Suct	Disch	Airflow
	°F	°F	cfm	°F	°F	cfm
IU-399	64.4	94.7	635	70.0	115.0	635
IU-398	64.4	94.7	635	70.0	115.0	635
IU-299	64.4	97.6	290	70.0	119.3	290
IU-298	64.4	94.7	635	70.0	115.0	635

Condition 1: The discharge temperature is calculated for an ambient temperature of 5.0°F and a room temperature of 64.4°F, as specified in the Preferences window. It also uses the maximum connection ratio of the installation and the corresponding fan speed of the indoor units.

Condition 2: The discharge temperature is calculated using the design ambient temperature 47.0°F, a room temperature of 70.0°F and an operational connection ratio of maximum 130%.

The analysis of the suction and discharge temperature values may help in preventing a cold draft and to ensure a thermal comfort level.

Please consider installing a central control/management device to enable a dual set point.

Name	Sound	PS	MCA	Fuses	WxHxD	Wght
			dBA		A	
IU-399	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31
IU-398	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31
IU-299	31-38	230V 1ph	0.4	15A	31.3x11.4x9.3	26
IU-298	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31



Outdoor unit placed 164.0ft above the indoor units.

The minimum connection ratio for this height difference is 50%.



2.4. HP-03 - RXYQ120PYD

Actual capacity data at conditions and connection ratio (100%) as entered

Name	FCU	Tmp C	Rq TC	TC	Rq SC	SC	Tmp H	Rq HC	HC
		°F	BTU/h	BTU/h	BTU/h	BTU/h	°F	BTU/h	BTU/h
IU-699	FXAQ12PVJU	75.2 / 62.6	6824	10139	6824	7814	70.0	6824	13500
IU-698	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499
IU-599	FXAQ12PVJU	75.2 / 62.6	6824	10139	6824	7814	70.0	6824	13500
IU-598	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499
IU-499	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499
IU-498	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499

The sum of the required indoor unit capacities is 101417BTU/h for cooling and 132995BTU/h for heating.

However, the outdoor unit selection uses reduced load values for cooling of 99389BTU/h (= -2%).

Be aware that unrealistic reductions may lead to reduced comfort levels, different noise levels or increased wear and tear.

Discharge temperature

Name	Condition 1			Condition 2		
	Suct	Disch	Airflow	Suct	Disch	Airflow
	°F	°F	cfm	°F	°F	cfm
IU-699	64.4	90.8	290	70.0	113.1	290
IU-698	64.4	88.6	635	70.0	109.4	635
IU-599	64.4	90.8	290	70.0	113.1	290
IU-598	64.4	88.6	635	70.0	109.4	635
IU-499	64.4	88.6	635	70.0	109.4	635
IU-498	64.4	88.6	635	70.0	109.4	635

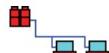
Condition 1: The discharge temperature is calculated for an ambient temperature of 5.0°F and a room temperature of 64.4°F, as specified in the Preferences window. It also uses the maximum connection ratio of the installation and the corresponding fan speed of the indoor units.

Condition 2: The discharge temperature is calculated using the design ambient temperature 47.0°F, a room temperature of 70.0°F and an operational connection ratio of maximum 130%.

The analysis of the suction and discharge temperature values may help in preventing a cold draft and to ensure a thermal comfort level.

Please consider installing a central control/management device to enable a dual set point.

Name	Sound dBA	PS	MCA	Fuses	WxHxD	Wght
		A			inch	lbs
IU-699	31-38	230V 1ph	0.4	15A	31.3x11.4x9.3	26
IU-698	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31
IU-599	31-38	230V 1ph	0.4	15A	31.3x11.4x9.3	26
IU-598	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31
IU-499	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31
IU-498	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31



Outdoor unit placed 164.0ft above the indoor units.

The minimum connection ratio for this height difference is 50%.

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2.5 HP-04 - RXYQ144PBYD

Actual capacity data at conditions and connection ratio (100%) as entered

Name	FCU	Tmp C	Rq TC	TC	Rq SC	SC	Tmp H	Rq HC	HC
		°F	BTU/h	BTU/h	BTU/h	BTU/h	°F	BTU/h	BTU/h
IU-044	FXFQ48PVJU	75.2 / 62.6	6824	40563	6824	30563	70.0	6824	53998
IU-093	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499
IU-034A	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499
IU-034B	FXFQ48PVJU	75.2 / 62.6	6824	40563	6824	30563	70.0	6824	53998

The sum of the required indoor unit capacities is 121695BTU/h for cooling and 160994BTU/h for heating.

However, the outdoor unit selection uses reduced load values for cooling of 119261BTU/h (= -2%).

Be aware that unrealistic reductions may lead to reduced comfort levels, different noise levels or increased wear and tear.

Discharge temperature

Name	Condition 1			Condition 2		
	Suct	Disch	Airflow	Suct	Disch	Airflow
	°F	°F	cfm	°F	°F	cfm
IU-044	64.4	92.4	1220	70.0	111.0	1220
IU-093	64.4	91.3	635	70.0	109.4	635
IU-034A	64.4	91.3	635	70.0	109.4	635
IU-034B	64.4	92.4	1220	70.0	111.0	1220

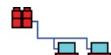
Condition 1: The discharge temperature is calculated for an ambient temperature of 5.0°F and a room temperature of 64.4°F, as specified in the Preferences window. It also uses the maximum connection ratio of the installation and the corresponding fan speed of the indoor units.

Condition 2: The discharge temperature is calculated using the design ambient temperature 47.0°F, a room temperature of 70.0°F and an operational connection ratio of maximum 130%.

The analysis of the suction and discharge temperature values may help in preventing a cold draft and to ensure a thermal comfort level.

Please consider installing a central control/management device to enable a dual set point.

Name	Sound dBA	PS 230V 1ph	MCA	Fuses	WxHxD		Wght lbs
			A		inch	lbs	
IU-044		230V 1ph	1.5	15 A	33.1x11.3x33.1		66
IU-093	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3		31
IU-034A	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3		31
IU-034B		230V 1ph	1.5	15 A	33.1x11.3x33.1		66



Outdoor unit placed 164.0ft above the indoor units.

The minimum connection ratio for this height difference is 50%.



2.6. HP-05 - RXYQ144PBVD

Actual capacity data at conditions and connection ratio (92%) as entered

Name	FCU	Tmp C	Rq TC	TC	Rq SC	SC	Tmp H	Rq HC	HC
		°F	BTU/h	BTU/h	BTU/h	BTU/h	°F	BTU/h	BTU/h
IU-393	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499
IU-394	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499
IU-293	FXAQ12PVJU	75.2 / 62.6	6824	10139	6824	7814	70.0	6824	13500
IU-294	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499
IU-193	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499
IU-142	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499

Discharge temperature

Name	Condition 1			Condition 2		
	Suct	Disch	Airflow	Suct	Disch	Airflow
	°F	°F	cfm	°F	°F	cfm
IU-393	64.4	93.8	635	70.0	113.0	635
IU-394	64.4	93.8	635	70.0	113.0	635
IU-293	64.4	96.6	290	70.0	117.0	290
IU-294	64.4	93.8	635	70.0	113.0	635
IU-193	64.4	93.8	635	70.0	113.0	635
IU-142	64.4	93.8	635	70.0	113.0	635

Condition 1: The discharge temperature is calculated for an ambient temperature of 5.0°F and a room temperature of 64.4°F, as specified in the Preferences window. It also uses the maximum connection ratio of the installation and the corresponding fan speed of the indoor units.

Condition 2: The discharge temperature is calculated using the design ambient temperature 47.0°F, a room temperature of 70.0°F and an operational connection ratio of maximum 130%.

The analysis of the suction and discharge temperature values may help in preventing a cold draft and to ensure a thermal comfort level.

Please consider installing a central control/management device to enable a dual set point.

Name	Sound dBA	PS	MCA	Fuses	WxHxD	Wght
			A		inch	
IU-393	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31
IU-394	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31
IU-293	31-38	230V 1ph	0.4	15A	31.3x11.4x9.3	26
IU-294	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31
IU-193	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31
IU-142	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31



Outdoor unit placed 164.0ft above the indoor units.
The minimum connection ratio for this height difference is 50%.



2.7. HP-06 - RXYQ72PYD

Actual capacity data at conditions and connection ratio (100%) as entered

Name	FCU	Tmp C	Rq TC	TC	Rq SC	SC	Tmp H	Rq HC	HC
		°F	BTU/h	BTU/h	BTU/h	BTU/h	°F	BTU/h	BTU/h
IU-791	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499
IU-622	FXAQ12PVJU	75.2 / 62.6	6824	10139	6824	7814	70.0	6824	13500
IU-593	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499
IU-493	FXAQ12PVJU	75.2 / 62.6	6824	10139	6824	7814	70.0	6824	13500

The sum of the required indoor unit capacities is 60848BTU/h for cooling and 79997BTU/h for heating.

However, the outdoor unit selection uses reduced load values for cooling of 59631BTU/h (= -2%).

Be aware that unrealistic reductions may lead to reduced comfort levels, different noise levels or increased wear and tear.

Discharge temperature

Name	Condition 1			Condition 2		
	Suct	Disch	Airflow	Suct	Disch	Airflow
	°F	°F	cfm	°F	°F	cfm
IU-791	64.4	93.5	635	70.0	109.4	635
IU-622	64.4	96.3	290	70.0	113.1	290
IU-593	64.4	93.5	635	70.0	109.4	635
IU-493	64.4	96.3	290	70.0	113.1	290

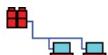
Condition 1: The discharge temperature is calculated for an ambient temperature of 5.0°F and a room temperature of 64.4°F, as specified in the Preferences window. It also uses the maximum connection ratio of the installation and the corresponding fan speed of the indoor units.

Condition 2: The discharge temperature is calculated using the design ambient temperature 47.0°F, a room temperature of 70.0°F and an operational connection ratio of maximum 130%.

The analysis of the suction and discharge temperature values may help in preventing a cold draft and to ensure a thermal comfort level.

Please consider installing a central control/management device to enable a dual set point.

Name	Sound dBA	PS	MCA	Fuses	WxHxD	Wght
			A		inch	lbs
IU-791	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31
IU-622	31-38	230V 1ph	0.4	15A	31.3x11.4x9.3	26
IU-593	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31
IU-493	31-38	230V 1ph	0.4	15A	31.3x11.4x9.3	26



Outdoor unit placed 164.0ft above the indoor units.

The minimum connection ratio for this height difference is 50%.



2.8. HP-07 - RXYQ144PBYD

Actual capacity data at conditions and connection ratio (92%) as entered

Name	FCU	Tmp C	Rq TC	TC	Rq SC	SC	Tmp H	Rq HC	HC
		°F	BTU/h	BTU/h	BTU/h	BTU/h	°F	BTU/h	BTU/h
IU-793b	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499
IU-793	FXAQ24PVJU	75.2 / 62.6	6824	20285	6824	15351	70.0	6824	26499
IU-701	FXFQ12PVJU	75.2 / 62.6	6824	10139	6824	9052	70.0	6824	13500
IU-631	FXFQ36PVJU	75.2 / 62.6	6824	30424	6824	24677	70.0	6824	39999
IU-630	FXFQ36PVJU	75.2 / 62.6	6824	30424	6824	24677	70.0	6824	39999

Discharge temperature

Name	Condition 1			Condition 2		
	Suct	Disch	Airflow	Suct	Disch	Airflow
	°F	°F	cfm	°F	°F	cfm
IU-793b	64.4	93.8	635	70.0	113.0	635
IU-793	64.4	93.8	635	70.0	113.0	635
IU-701	64.4	84.7	460	70.0	99.7	460
IU-631	64.4	88.1	1180	70.0	104.7	1180
IU-630	64.4	88.1	1180	70.0	104.7	1180

Condition 1: The discharge temperature is calculated for an ambient temperature of 5.0°F and a room temperature of 64.4°F, as specified in the Preferences window. It also uses the maximum connection ratio of the installation and the corresponding fan speed of the indoor units.

Condition 2: The discharge temperature is calculated using the design ambient temperature 47.0°F, a room temperature of 70.0°F and an operational connection ratio of maximum 130%.

The analysis of the suction and discharge temperature values may help in preventing a cold draft and to ensure a thermal comfort level.

Please consider installing a central control/management device to enable a dual set point.

Name	Sound dBA	PS	MCA	Fuses	WxHxD	Wght lbs
			A		inch	
IU-793b	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31
IU-793	41-47	230V 1ph	0.6	15A	41.4x11.4x9.3	31
IU-701		230V 1ph	0.3	15 A	33.1x9.7x33.1	55
IU-631		230V 1ph	1.4	15 A	33.1x11.3x33.1	66
IU-630		230V 1ph	1.4	15 A	33.1x11.3x33.1	66



Outdoor unit placed 164.0ft above the indoor units.

The minimum connection ratio for this height difference is 50%.



3. Outdoor Unit Details

3.1. Table of Abbreviations

Name	Logical name of the device
Model	Device model name
Comb	Connection ratio
Tmp C	Outdoor temperature in cooling
CC	Available cooling capacity
Rq CC	Required cooling capacity
Tmp H	Outdoor conditions in heating (dry bulb temp. / wet bulb temp.)
HC	Available heating capacity (integrated heating capacity)
Rq HC	Required heating capacity
Piping	Largest distance from indoor unit to outdoor unit
Bse Refr	Standard factory refrigerant charge (5m actual piping length) excluding extra refrigerant charge For calculation of extra refrigerant charge refer to the databook
Ex Refr	Extra refrigerant charge
PS	Power supply (voltage and phases)
MCA	Minimum Circuit Amps
MFA	Maximum Fuse Amps
Run Amps	Running Amps
St Curr	Starting current
Fuses	Fuses
WxHxD	WidthxHeightxDepth
Wght	Weight of the device
EER	EER value at nominal conditions
IEER	IEER value at nominal conditions
COP 47°F	COP value at nominal conditions and ambient temperature of 47°F
COP 17°F	COP value at nominal conditions and ambient temperature of 17°F



3.2. Outdoor Details

Name	Model	Comb	Tmp C	CC	Rq CC	Tmp H	HC	Rq HC	Piping	Bse Refr	Ex Refr
		%	°F	BTU/h	BTU/h	°F	BTU/h	BTU/h	ft	lbs	lbs
HP-01	RXYQ144PBYD	92	96.0	120658	111563BTU/h	47.0 / 39.4	161994	145995BTU/h	147.6	33.0	n/a
HP-02	RXYQ96PBYD	88	96.0	80161	70993BTU/h	47.0 / 39.4	107996	92997BTU/h	147.6	21.4	n/a
HP-03	RXYQ120PBYD	100	96.0	100548	99389BTU/h	47.0 / 39.4	134995	132995BTU/h	147.6	22.0	n/a
HP-04	RXYQ144PBYD	100	96.0	119744	119261BTU/h	47.0 / 39.4	161994	160994BTU/h	216.5	33.0	18.9
HP-05	RXYQ144PBYD	92	96.0	120658	111563BTU/h	47.0 / 39.4	161994	145995BTU/h	147.6	33.0	n/a
HP-06	RXYQ72PBYD	100	96.0	60051	59631BTU/h	47.0 / 39.4	80997	79997BTU/h	147.6	16.5	n/a
HP-07	RXYQ144PBYD	92	96.0	120658	111556BTU/h	47.0 / 39.4	161994	146495BTU/h	147.6	33.0	n/a

Name	Model	PS	MCA	MFA	Run Amps	St Curr	Fuses	WxHxD	Wght
			A	A	A	A		inch	lbs
HP-01	RXYQ144PBYD	460V 3ph							
* RXYQ72PBYD			16	20	7.1		20A	36.6x66.1x30.1	433
* RXYQ72PBYD			16	20	7.1		20A	36.6x66.1x30.1	433
HP-02	RXYQ96PBYD	460V 3ph	21	25	12.3	65	25A	48.9x66.1x30.1	633
HP-03	RXYQ120PBYD	460V 3ph	21	25	13.8	65	25A	48.9x66.1x30.1	633
HP-04	RXYQ144PBYD	460V 3ph							
* RXYQ72PBYD			16	20	7.1		20A	36.6x66.1x30.1	433
* RXYQ72PBYD			16	20	7.1		20A	36.6x66.1x30.1	433
HP-05	RXYQ144PBYD	460V 3ph							
* RXYQ72PBYD			16	20	7.1		20A	36.6x66.1x30.1	433
* RXYQ72PBYD			16	20	7.1		20A	36.6x66.1x30.1	433
HP-06	RXYQ72PBYD	460V 3ph	16	20	7.1		20A	36.6x66.1x30.1	433
HP-07	RXYQ144PBYD	460V 3ph							
* RXYQ72PBYD			16	20	7.1		20A	36.6x66.1x30.1	433
* RXYQ72PBYD			16	20	7.1		20A	36.6x66.1x30.1	433

Sufficient distance should be respected between the modules according to the service & operation space rules as mentioned in the databook.

Name	Ducted				Non-ducted			
	EER	IEER	COP 47°F	COP 17°F	EER	IEER	COP 47°F	COP 17°F
HP-01	12.7	22.1	3.7	2.45	14	21.5	3.9	2.55
HP-02	12.5	18.8	3.65	2.5	13.5	23	4.2	2.85
HP-03	11.9	17.2	3.63	2.5	12.5	20.4	3.8	2.65
HP-04	12.7	22.1	3.7	2.45	14	21.5	3.9	2.55
HP-05	12.7	22.1	3.7	2.45	14	21.5	3.9	2.55
HP-06	12.8	21.5	3.71	2.4	14.1	25.8	4	2.65
HP-07	12.7	22.1	3.7	2.45	14	21.5	3.9	2.55



3.2.1. HP-01 - RXYQ144PBYD

Model	Qty	Description
RXYQ144PBYD	1	Heat pump VRV P(B) R410A (460V)
FXAQ24PVJU	4	VRV A (P) - Wall Mounted Unit
FXFQ36PVJU	1	VRV F (R) - Round Flow Ceiling Mounted Cassette (3' x 3')
KHRP26A22T	1	REFNET branch piping kit
KHRP26A33T	2	REFNET branch piping kit
KHRP26M72TU	1	REFNET branch piping kit
BRC1E72	5	Navigation Remote Controller 2013
BYCP125K-W1	1	Decoration Panel - Round Flow FXFQ-P
BHFP22P100U	1	Outdoor Multi Connection Pipe Kit - VRV P Series HP

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3.2.2. HP-02 - RXYQ96PBYD

Model	Qty	Description
RXYQ96PBYD	1	Heat pump VRV P(B) R410A (460V)
FXAQ12PVJU	1	VRV A (P) - Wall Mounted Unit
FXAQ24PVJU	3	VRV A (P) - Wall Mounted Unit
KHRP26A22T	2	REFNET branch piping kit
KHRP26A33T	1	REFNET branch piping kit
BRC1E72	4	Navigation Remote Controller 2013

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3.2.3. HP-03 - RXYQ120PBYD

Model	Qty	Description
RXYQ120PBYD	1	Heat pump VRV P(B) R410A (460V)
FXAQ12PVJU	2	VRV A (P) - Wall Mounted Unit
FXAQ24PVJU	4	VRV A (P) - Wall Mounted Unit
KHRP26A22T	1	REFNET branch piping kit
KHRP26A33T	3	REFNET branch piping kit
KHRP26M72TU	1	REFNET branch piping kit
BRC1E72	6	Navigation Remote Controller 2013

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3.2.4. HP-04 - RXYQ144PBYD

Model	Qty	Description
RXYQ144PBYD	1	Heat pump VRV P(B) R410A (460V)
FXAQ24PVJU	2	VRV A (P) - Wall Mounted Unit
FXFQ48PVJU	2	VRV F (R) - Round Flow Ceiling Mounted Cassette (3' x 3')
KHRP26A33T	2	REFNET branch piping kit
KHRP26M72TU	1	REFNET branch piping kit
BRC1E72	4	Navigation Remote Controller 2013
BYCP125K-W1	2	Decoration Panel - Round Flow FXFQ-P
BHFP22P100U	1	Outdoor Multi Connection Pipe Kit - VRV P Series HP
Piping 3/8"	189.0ft	
Piping 1/2"	100.0ft	
Piping 5/8"	159.0ft	
Piping 7/8"	30.0ft	
Piping 1 1/8"	100.0ft	

Standard factory refrigerant charge (5m actual piping length) = 33.1lbs

Extra refrigerant charge = $2.2 + 1.1 + 189.0\text{ft}(3/8") \times 0.059\text{kg/m} + 100.0\text{ft}(1/2") \times 0.12\text{kg/m} = 19.0\text{lbs}$



3.2.5. HP-05 - RXYQ144PBYD

Model	Qty	Description
RXYQ144PBYD	1	Heat pump VRV P(B) R410A (460V)
FXAQ12PVJU	1	VRV A (P) - Wall Mounted Unit
FXAQ24PVJU	5	VRV A (P) - Wall Mounted Unit
KHRP26A22T	1	REFNET branch piping kit
KHRP26A33T	3	REFNET branch piping kit
KHRP26M72TU	1	REFNET branch piping kit
BRC1E72	6	Navigation Remote Controller 2013
BHFP22P100U	1	Outdoor Multi Connection Pipe Kit - VRV P Series HP

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3.2.6. HP-06 - RXYQ72PBYD

Model	Qty	Description
RXYQ72PBYD	1	Heat pump VRV P(B) R410A (460V)
FXAQ12PVJU	2	VRV A (P) - Wall Mounted Unit
FXAQ24PVJU	2	VRV A (P) - Wall Mounted Unit
KHRP26A22T	2	REFNET branch piping kit
KHRP26A33T	1	REFNET branch piping kit
BRC1E72	4	Navigation Remote Controller 2013

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3.2.7. HP-07 - RXYQ144PBYD

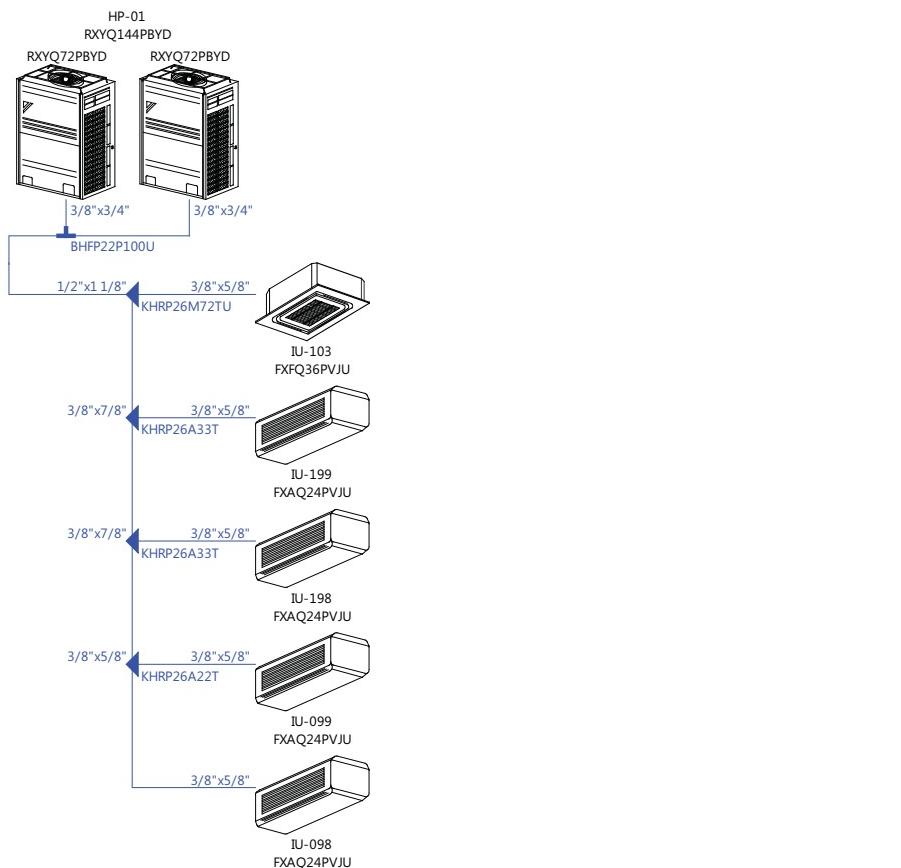
Model	Qty	Description
RXYQ144PBYD	1	Heat pump VRV P(B) R410A (460V)
FXAQ24PVJU	2	VRV A (P) - Wall Mounted Unit
FXFQ12PVJU	1	VRV F (R) - Round Flow Ceiling Mounted Cassette (3' x 3')
FXFQ36PVJU	2	VRV F (R) - Round Flow Ceiling Mounted Cassette (3' x 3')
KHRP26A33T	3	REFNET branch piping kit
KHRP26M72TU	1	REFNET branch piping kit
BRC1E72	5	Navigation Remote Controller 2013
BYCP125K-W1	3	Decoration Panel - Round Flow FXFQ-P
BHFP22P100U	1	Outdoor Multi Connection Pipe Kit - VRV P Series HP

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4. Piping Diagrams

Pipes marked with * in the diagrams must be connected to the device with a reducing joint.

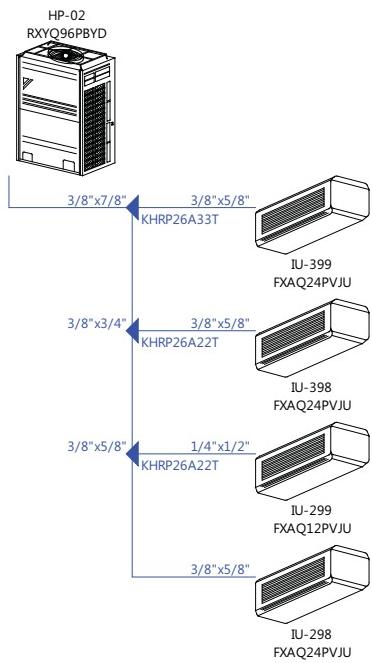
4.1. Piping HP-01



Warning: The pipe diameter values are purely indicative. Depending on the required pipe lengths, a different pipe diameter might be required.



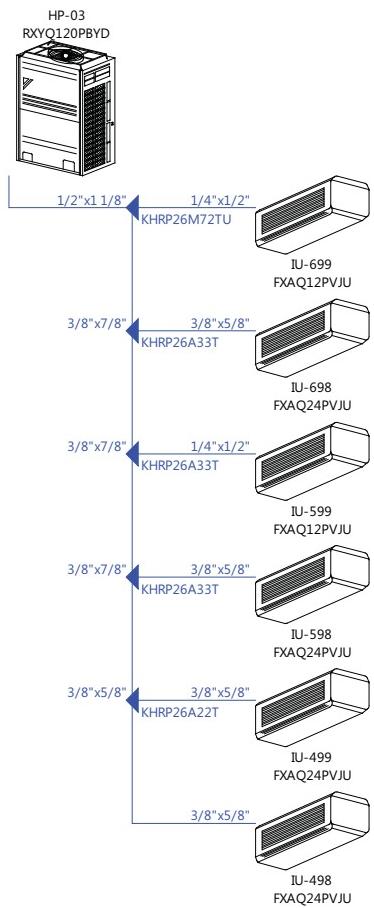
4.2. Piping HP-02



Warning: The pipe diameter values are purely indicative. Depending on the required pipe lengths, a different pipe diameter might be required.



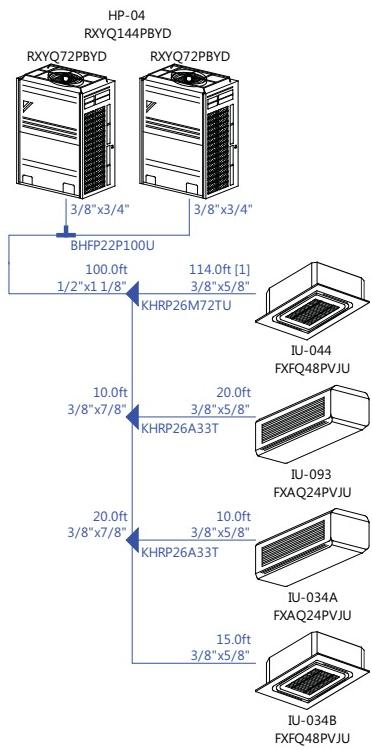
4.3. Piping HP-03



Warning: The pipe diameter values are purely indicative. Depending on the required pipe lengths, a different pipe diameter might be required.



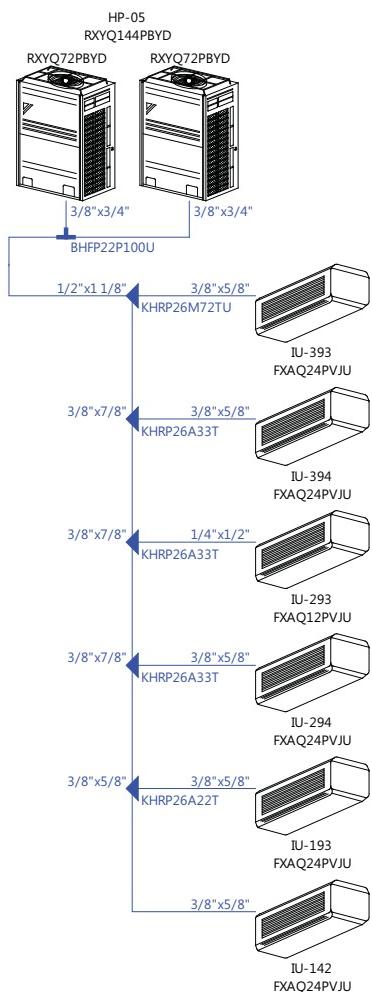
4.4. Piping HP-04



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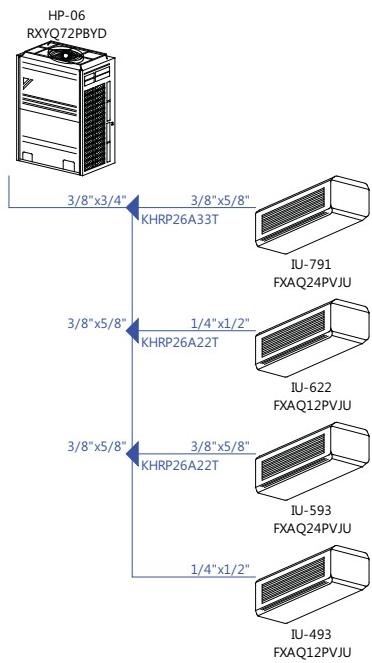
4.5. Piping HP-05



Warning: The pipe diameter values are purely indicative. Depending on the required pipe lengths, a different pipe diameter might be required.

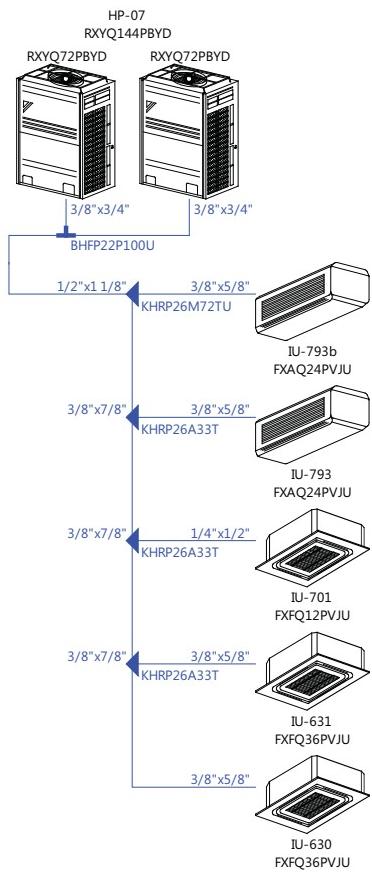


4.6. Piping HP-06



Warning: The pipe diameter values are purely indicative. Depending on the required pipe lengths, a different pipe diameter might be required.

4.7. Piping HP-07

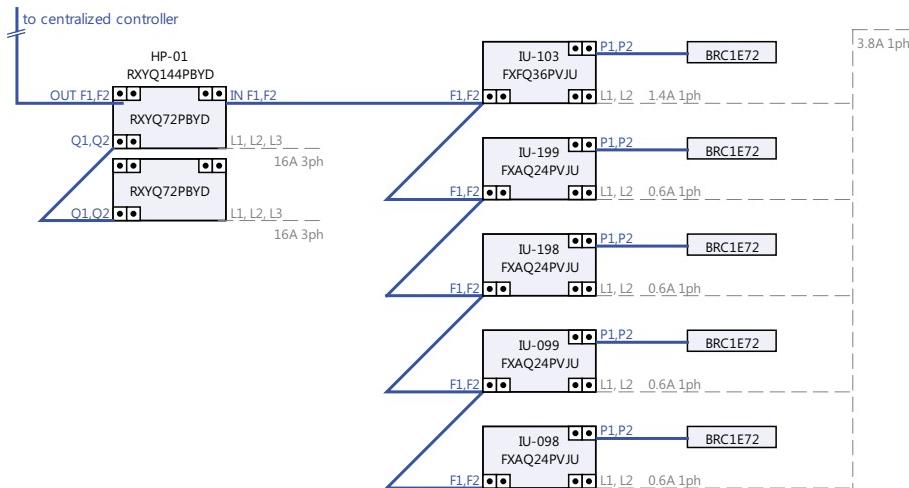


Warning: The pipe diameter values are purely indicative. Depending on the required pipe lengths, a different pipe diameter might be required.

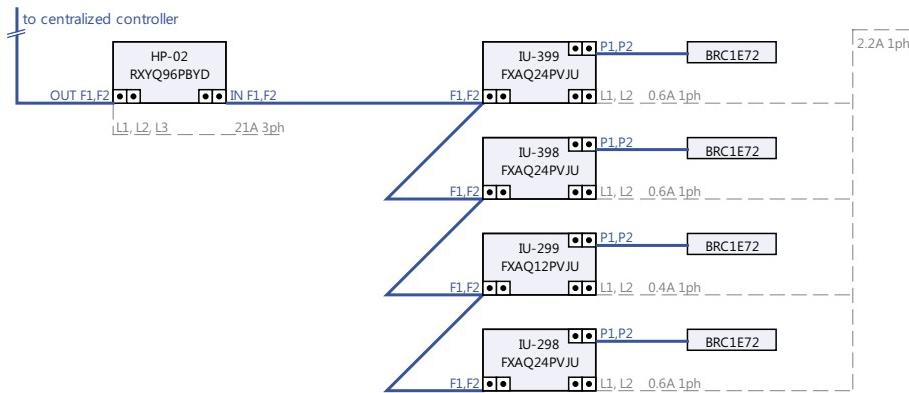
5. Wiring Diagrams

P1P2 = Please select the cable type and size in accordance with the databook.
 F1F2 = Please select the cable type and size in accordance with the databook.

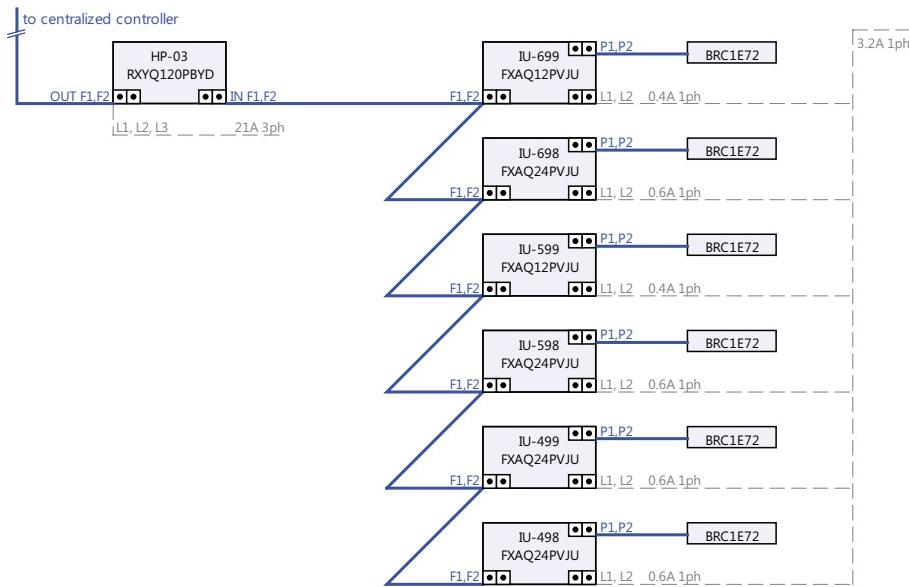
5.1. Wiring HP-01



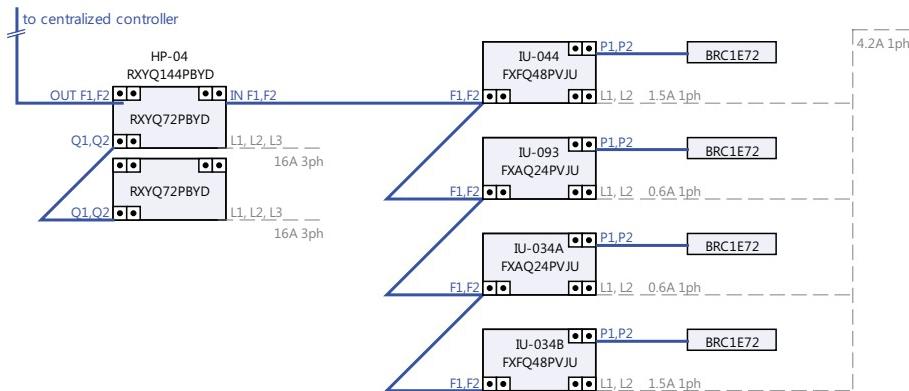
5.2. Wiring HP-02



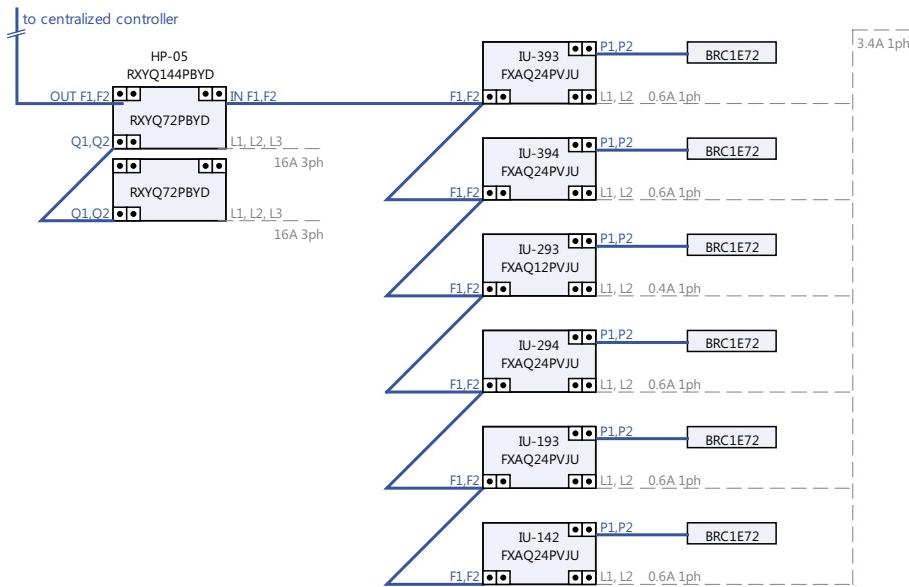
5.3. Wiring HP-03



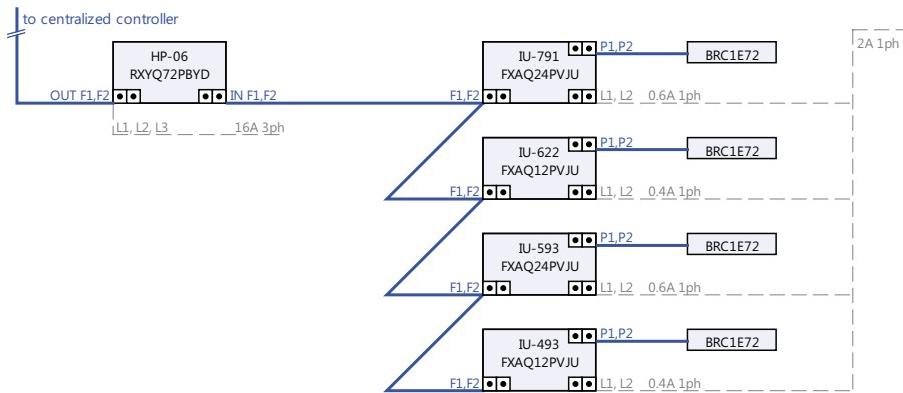
5.4. Wiring HP-04



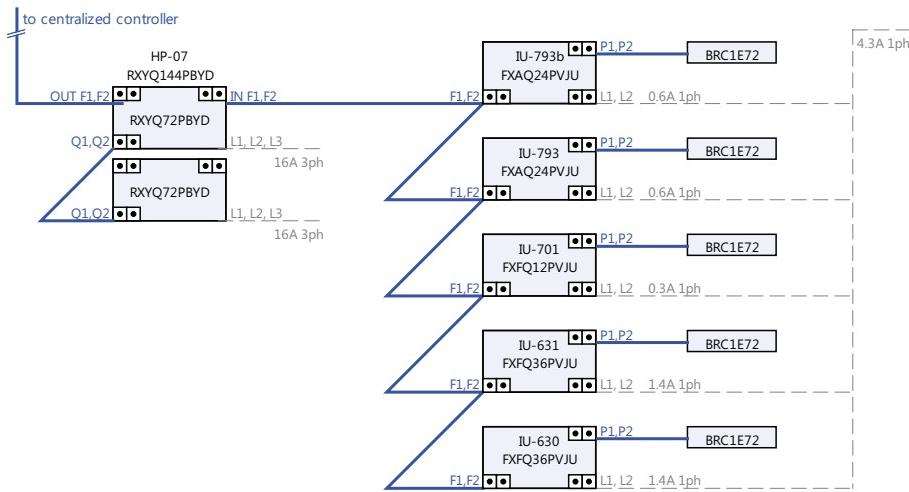
5.5. Wiring HP-05



5.6. Wiring HP-06



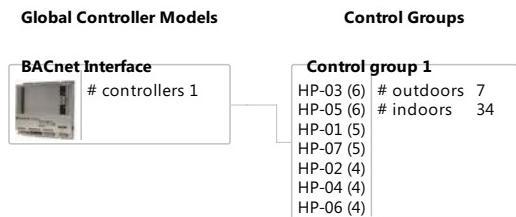
5.7. Wiring HP-07





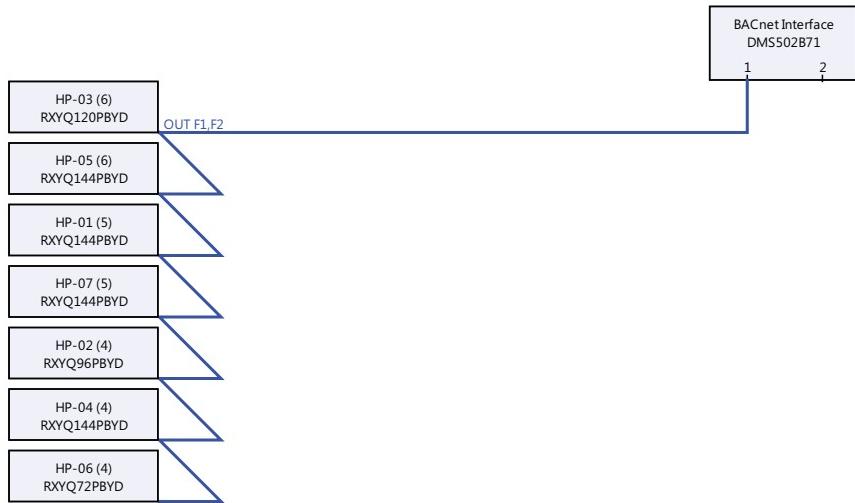
6. Centralized Controllers

6.1. Concept



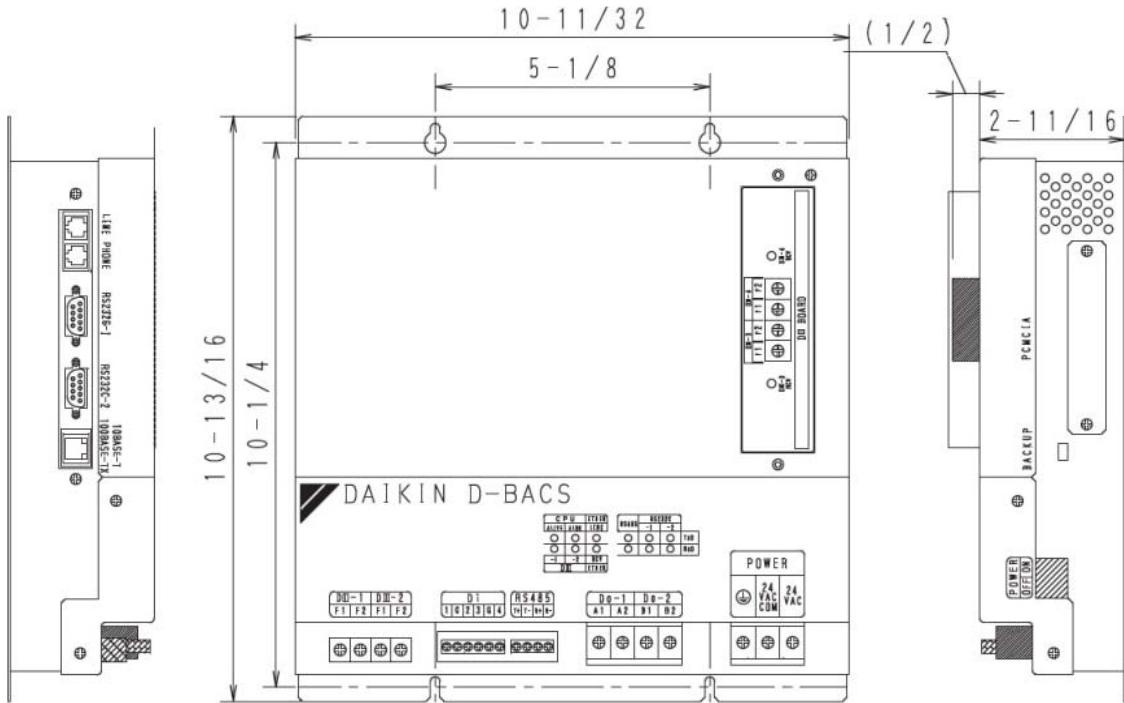
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6.2. Control group 1



6.3. Dimensional Drawings

BACnet Interface DMS502B71



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INDOOR UNIT DETAILS

1. Specifications

Wall Mounted Type

Model		FXAQ07PVJU	FXAQ09PVJU	FXAQ12PVJU
Power Supply		1 phase, 208/230V, 60Hz		
★1, ★3 Cooling Capacity	Btu/h	7,500	9,500	12,000
★2, ★3 Heating Capacity	Btu/h	8,500	10,500	13,500
Casing Color		White (3.0Y8.5/0.5)	White (3.0Y8.5/0.5)	White (3.0Y8.5/0.5)
Dimensions: (HxWxD)	in (mm)	11-3/8 x 31-1/4 x 9-1/4 (289 x 794 x 235)	11-3/8 x 31-1/4 x 9-1/4 (289 x 794 x 235)	11-3/8 x 31-1/4 x 9-1/4 (289 x 794 x 235)
Coil (Cross Fin Coil)	RowsxStagesxFPI	2x14x17	2x14x17	2x14x17
	Face Area	ft ² (m ²)	1.73	1.73
Fan	Model	QCL9661M	QCL9661M	QCL9661M
	Type	Cross Flow Fan	Cross Flow Fan	Cross Flow Fan
	Motor Output	W	40	40
	Air Flow Rate (H/L)	cfm (m ³ /min)	260/160 (79/49)	280/175 (85/53)
	Drive		Direct Drive	Direct Drive
Temperature Control		Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material		Foamed Polystyrene / Foamed Polyethylene	Foamed Polystyrene / Foamed Polyethylene	Foamed Polystyrene / Foamed Polyethylene
Air Filter		Resin Net (Washable)	Resin Net (Washable)	Resin Net (Washable)
Machine Weight (Mass)	Lbs (kg)	26 (12)	26 (12)	26 (12)
Piping Connections	Liquid Pipes	in (mm)	φ1/4 (6.4) (Flare Connection)	φ1/4 (6.4) (Flare Connection)
	Gas Pipes	in (mm)	φ1/2 (12.7) (Flare Connection)	φ1/2 (12.7) (Flare Connection)
	Drain Pipe	in (mm)	VP13 (External Dia. 11/16 (17.5) Internal Dia. 1/2 (12.7))	VP13 (External Dia. 11/16 (17.5) Internal Dia. 1/2 (12.7))
★4 Sound Level (H/L)	dB(A)	36/31	37/31	38/31
Safety Devices		Fuse	Fuse	Fuse
Refrigerant Control		Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit		R-410A VRV Series	R-410A VRV Series	R-410A VRV Series
Standard Accessories		Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Insulation Tube, Clamps, Screws.	Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Insulation Tube, Clamps, Screws.	Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Insulation Tube, Clamps, Screws.
Drawing No.		C: 3D075572A		

Notes:

- ★ 1 Nominal cooling capacities are based on the following conditions:
Return air temperature: 80°FDB, 67°FWB (27°CDB / 19.4°CWB)
Outdoor temperature: 95°FDB (35°CDB)
Equivalent ref. piping length: 25ft (7.5 m) (Horizontal)
- ★ 2 Nominal heating capacities are based on the following conditions:
Return air temperature: 70°FDB (21°CDB).
Outdoor temperature: 47°FDB, 43°FWB (8.3°CDB / 6°CWB)
Equivalent ref. piping length: 25ft (7.5 m) (Horizontal)
- ★ 3 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★ 4 Sound levels are measured under JIS conditions.
- 5 Refer to page 9 for Power Input.

Wall Mounted Type

Model		FXAQ18PVJU	FXAQ24PVJU
Power Supply		1 phase, 208/230V, 60Hz	
★1, ★3 Cooling Capacity	Btu/h	18,000	24,000
★2, ★3 Heating Capacity	Btu/h	20,000	26,500
Casing Color		White (3.0Y8.5/0.5)	White (3.0Y8.5/0.5)
Dimensions: (HxWxD)	in (mm)	11-3/8 x 41-3/8 x 9-1/4 (289 x 1051 x 235)	11-3/8 x 41-3/8 x 9-1/4 (289 x 1051 x 235)
Coil (Cross Fin Coil)	RowsxStagesxFPI	2x14x17	2x14x17
Face Area	ft ² (m ²)	2.29 (0.7)	2.29 (0.7)
Fan	Model	QCL9686M	QCL9686M
	Type	Cross Flow Fan	Cross Flow Fan
	Motor Output	43	43
	Air Flow Rate (H/L)	cfm (m ³ /min)	635/470 (194/143)
	Drive	Direct Drive	Direct Drive
Temperature Control		Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating
Sound Absorbing Thermal Insulation Material		Foamed Polystyrene / Foamed Polyethylene	Foamed Polystyrene / Foamed Polyethylene
Air Filter		Resin Net (Washable)	Resin Net (Washable)
Machine Weight (Mass)	Lbs (kg)	31 (14)	31 (14)
Piping Connections	Liquid Pipes	in (mm)	ϕ1/4 (6.4) (Flare Connection)
	Gas Pipes	in (mm)	ϕ1/2 (12.7) (Flare Connection)
	Drain Pipe	in (mm)	VP13 (External Dia. 11/16 (17.5) Internal Dia. 1/2 (12.7))
★4 Sound Level (H/L)	dB(A)	43/37	47/41
Safety Devices		Fuse	Fuse
Refrigerant Control		Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit		R-410A VRV Series	R-410A VRV Series
Standard Accessories		Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation tape, Insulation Tube, Clamps, Screws.	Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation tape, Insulation Tube, Clamps, Screws.
Drawing No.		C: 3D075572A	

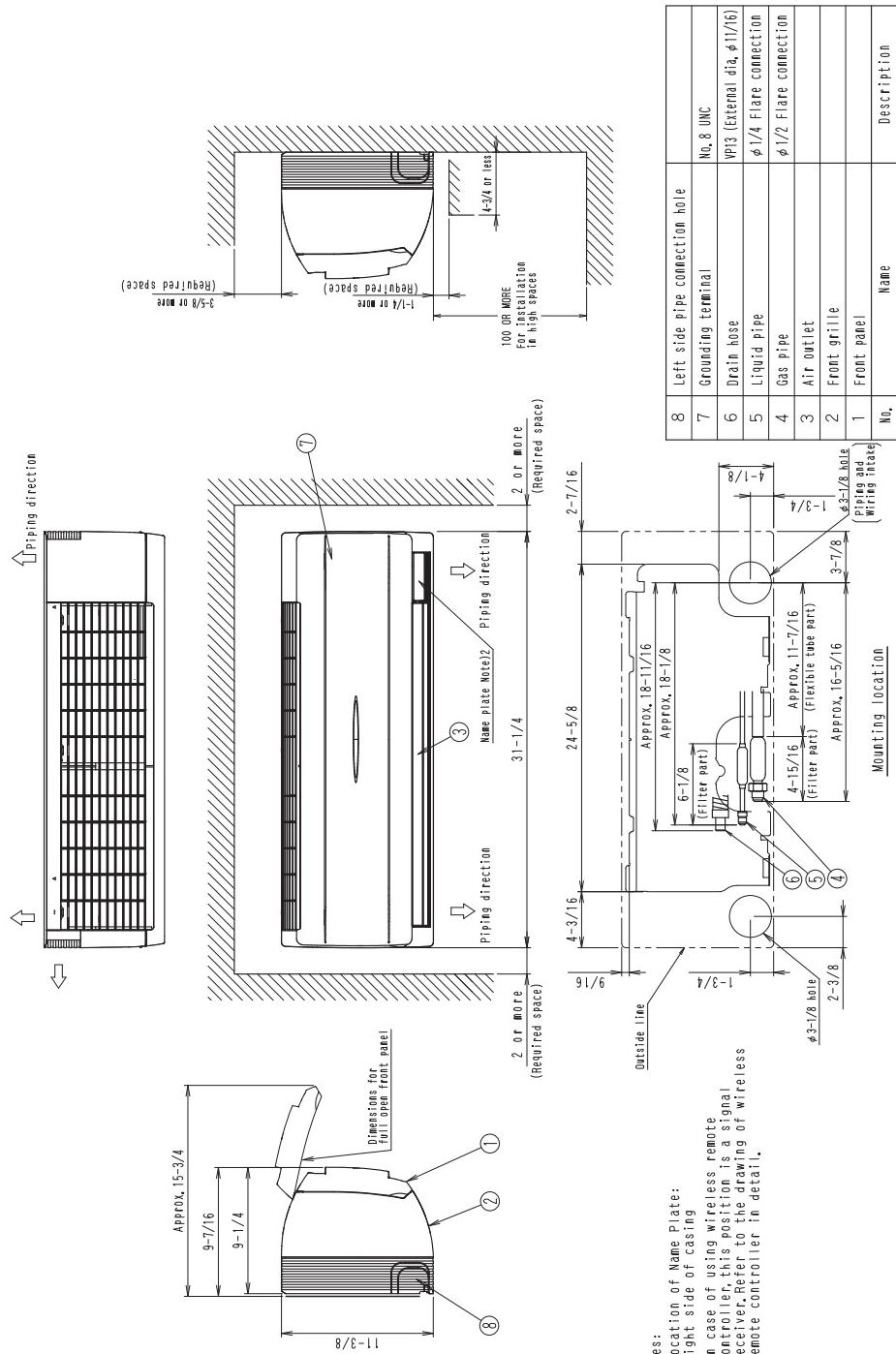
Notes:

- ★ 1 Nominal cooling capacities are based on the following conditions:
 Return air temperature: 80°FDB, 67°FWB (27°CDB / 19.4°CWB)
 Outdoor temperature: 95°FDB (35°CDB)
 Equivalent ref. piping length: 25ft (7.5 m) (Horizontal)
- ★ 2 Nominal heating capacities are based on the following conditions:
 Return air temperature: 70°FDB (21°CDB).
 Outdoor temperature: 47°FDB, 43°FWB (8.3°CDB / 6°CWB)
 Equivalent ref. piping length: 25ft (7.5 m) (Horizontal)
- ★ 3 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- ★ 4 Sound levels are measured under JIS conditions.
- 5 Refer to page 9 for Power Input.

2. Dimensions

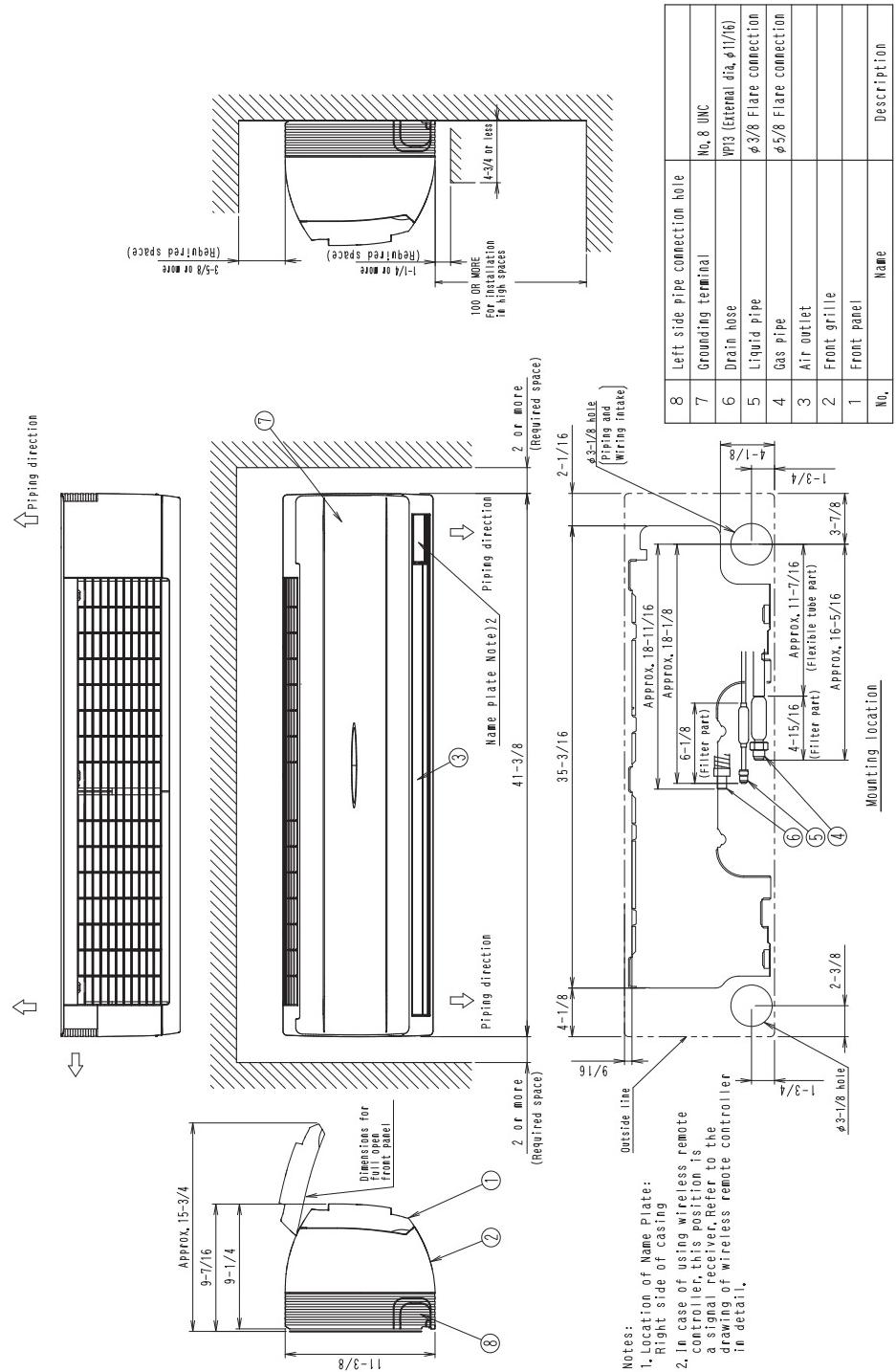
FXAQ07PVJU/FXAQ09PVJU/FXAQ12PVJU

Unit (in.)



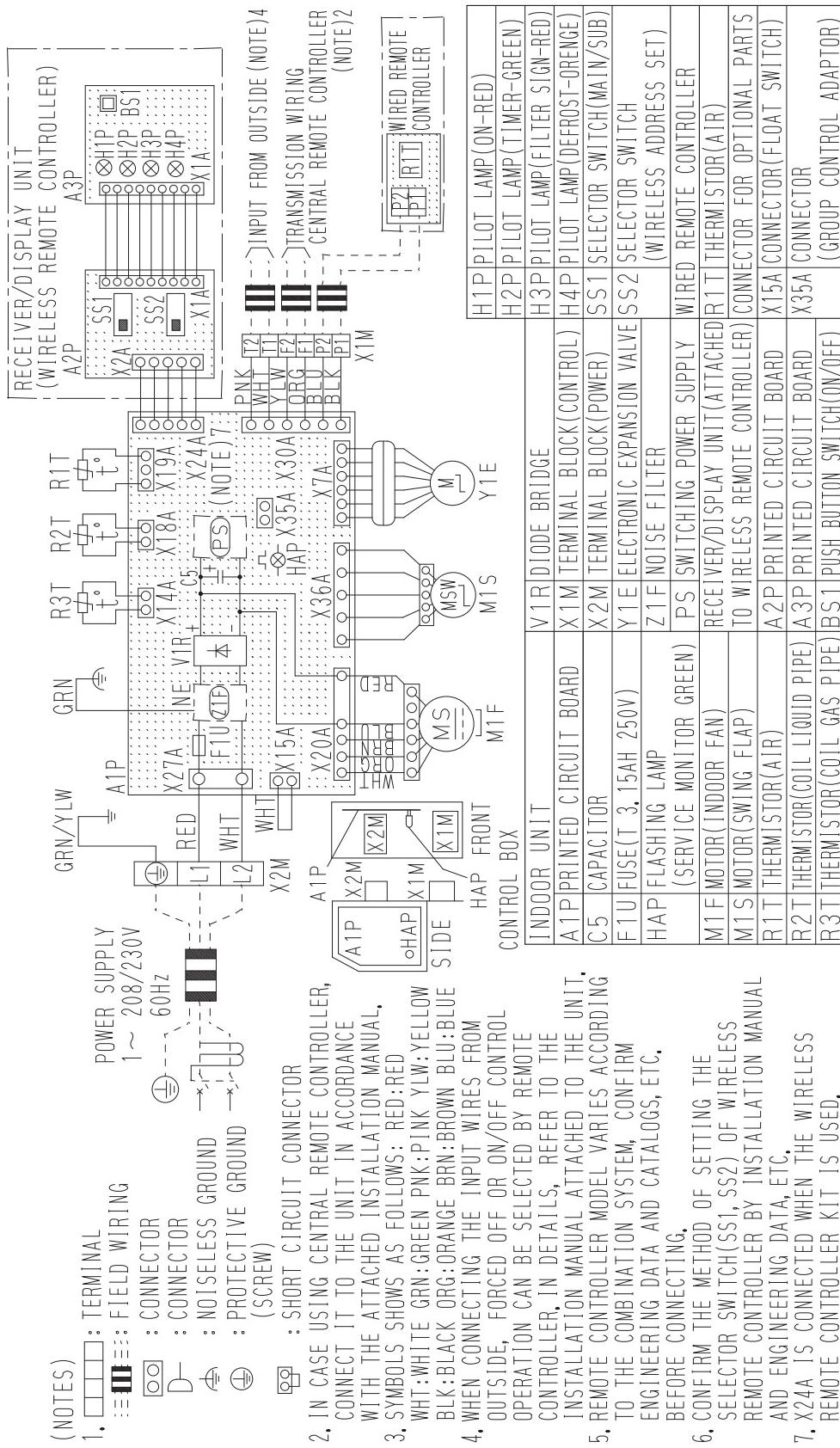
FXAQ24PVJU

Unit (in.)



4. Wiring Diagrams

FXAQ07PVJU/FXAQ09PVJU/FXAQ12PVJU/FXAQ18PVJU/FXAQ24PVJU



5. Electric Characteristics

Model	Power supply					IFM		Input (W)	
	Hz	Volts	Voltage range	MCA	MOP	kW	FLA	Cooling	Heating
FXAQ07PVJU				0.4	15	0.040	0.3	19	29
FXAQ09PVJU				0.4	15	0.040	0.3	28	34
FXAQ12PVJU	60	208V/230V	MAX. 253V Min. 187V	0.4	15	0.040	0.3	30	35
FXAQ18PVJU				0.5	15	0.043	0.4	33	39
FXAQ24PVJU				0.6	15	0.043	0.5	50	60

Symbols :

- MCA : Minimum Circuit Ampacity(A)
 MOP : Maximum Overcurrent Protective Device(A)
 KW : Fan Motor Rated Output(kW)
 FLA : Full Load Ampacity(A)
 IFM : Indoor Fan Motor

Note :

1. Voltage range
Units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits,
2. Maximum allowable voltage unbalance between phases is 2%.
3. MCA/MOP
 $MCA = 1.25 \times FLA$
 $MOP \leq 4 \times FLA$
(Next lower standard fuse rating. Minimum 15A)
4. Select wire size based on the value of MCA.
5. Either a fuse or a circuit breaker is acceptable.

4D075550

6. Safety Devices Setting

	Safety devices	07	09	12	18	24
FXAQ - PVJU	PC board fuse			250V 3.15A		
	Fan motor thermal fuse	°F				
	Fan motor thermal protector	°F				

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7. Capacity Tables

7.1 Cooling Capacity

FXAQ-P

[Cooling capacity]

Unit size	Outdoor air temp.	Indoor air temp.											
		61 °FWB		64 °FWB		67 °FWB		70 °FWB		72 °FWB		75 °FWB	
		TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
07	°FDB	MBh	MBh	MBh	MBh	MBh	MBh	MBh	MBh	MBh	MBh	MBh	MBh
	75	5.9	5.6	6.7	6.1	7.5	6.4	8.3	6.6	8.8	6.8	8.9	6.5
	79	5.9	5.6	6.7	6.1	7.5	6.4	8.3	6.6	8.6	6.6	8.8	6.4
	83	5.9	5.6	6.7	6.1	7.5	6.4	8.3	6.6	8.5	6.5	8.6	6.3
	87	5.9	5.6	6.7	6.1	7.5	6.4	8.2	6.6	8.3	6.4	8.5	6.2
	91	5.9	5.6	6.7	6.1	7.5	6.4	8.1	6.6	8.2	6.4	8.4	6.1
	95	5.9	5.6	6.7	6.1	7.5	6.4	8.0	6.5	8.1	6.3	8.2	6.0
	99	5.9	5.6	6.7	6.1	7.5	6.4	7.8	6.3	7.9	6.2	8.1	5.9
09	103	5.9	5.6	6.7	6.1	7.5	6.4	7.7	6.2	7.8	6.1	7.9	5.8
	75	7.5	6.5	8.5	7.2	9.5	7.3	10.5	7.7	11.1	8.1	11.3	7.6
	79	7.5	6.5	8.5	7.2	9.5	7.3	10.5	7.7	10.9	8.0	11.1	7.4
	83	7.5	6.5	8.5	7.2	9.5	7.3	10.5	7.7	10.7	7.8	10.9	7.3
	87	7.5	6.5	8.5	7.2	9.5	7.3	10.4	7.6	10.6	7.7	10.9	7.3
	91	7.5	6.5	8.5	7.2	9.5	7.3	10.3	7.5	10.4	7.6	10.6	7.1
	95	7.5	6.5	8.5	7.2	9.5	7.3	10.1	7.4	10.2	7.4	10.4	7.0
	99	7.5	6.5	8.5	7.2	9.5	7.3	9.9	7.2	10.0	7.3	10.2	6.8
12	103	7.5	6.5	8.5	7.2	9.5	7.3	9.7	7.1	9.9	7.2	10.0	6.7
	75	9.5	7.9	10.7	8.3	12.0	8.9	13.3	9.2	14.0	9.3	14.3	8.8
	79	9.5	7.9	10.7	8.3	12.0	8.9	13.3	9.2	13.8	9.1	14.0	8.7
	83	9.5	7.9	10.7	8.3	12.0	8.9	13.3	9.2	13.6	9.1	13.8	8.6
	87	9.5	7.9	10.7	8.3	12.0	8.9	13.2	9.1	13.3	8.9	13.6	8.6
	91	9.5	7.9	10.7	8.3	12.0	8.9	13.0	9.1	13.1	8.9	13.4	8.5
	95	9.5	7.9	10.7	8.3	12.0	8.9	12.7	8.9	12.9	8.8	13.1	8.5
	99	9.5	7.9	10.7	8.3	12.0	8.9	12.5	8.9	12.7	8.7	12.9	8.4
18	103	9.5	7.9	10.7	8.3	12.0	8.9	12.3	8.7	12.4	8.6	12.7	8.4
	75	14.2	11.7	16.1	12.7	18.0	13.7	19.9	13.9	21.0	14.1	21.4	12.8
	79	14.2	11.7	16.1	12.7	18.0	13.7	19.9	13.9	20.7	13.9	21.1	12.7
	83	14.2	11.7	16.1	12.7	18.0	13.7	19.9	13.9	20.4	13.8	20.7	12.6
	87	14.2	11.7	16.1	12.7	18.0	13.7	19.8	13.8	20.0	13.6	20.4	12.6
	91	14.2	11.7	16.1	12.7	18.0	13.7	19.4	13.8	19.7	13.6	20.1	12.5
	95	14.2	11.7	16.1	12.7	18.0	13.7	19.1	13.6	19.3	13.3	19.7	12.4
	99	14.2	11.7	16.1	12.7	18.0	13.7	18.8	13.5	19.0	12.7	19.4	12.3
24	103	14.2	11.7	16.1	12.7	18.0	13.7	18.4	13.3	18.7	12.5	19.0	12.2
	75	18.9	15.3	21.5	16.5	24.0	18.0	26.5	18.3	28.0	18.5	28.5	17.1
	79	18.9	15.3	21.5	16.5	24.0	18.0	26.5	18.3	27.6	18.3	28.1	16.9
	83	18.9	15.3	21.5	16.5	24.0	18.0	26.5	18.3	27.1	18.2	27.6	16.8
	87	18.9	15.3	21.5	16.5	24.0	18.0	26.4	18.2	26.7	18.0	27.2	16.6
	91	18.9	15.3	21.5	16.5	24.0	18.0	25.9	18.1	26.2	17.8	26.7	16.4
	95	18.9	15.3	21.5	16.5	24.0	18.0	25.5	17.8	25.8	17.6	26.3	16.2
	99	18.9	15.3	21.5	16.5	24.0	18.0	25.0	17.8	25.3	17.4	25.8	15.9
	103	18.9	15.3	21.5	16.5	24.0	18.0	24.6	17.4	24.9	17.2	25.4	15.7

TC: Total capacity: MBh

SHC: Sensible heat capacity: MBh



Refer to outdoor unit capacity tables for the actual performance data of each indoor and outdoor unit combination.

7.2 Heating Capacity

FXAQ-P

[Heating capacity]

Unit size	Outdoor air temp.	Indoor air temp.					
		62 °FDB	65 °FDB	68 °FDB	70 °FDB	72 °FDB	75 °FDB
		TC	TC	TC	TC	TC	TC
07	°FDB	°FWB	MBh	MBh	MBh	MBh	MBh
	22.0	20.0	7.3	7.3	7.3	7.3	7.2
	26.0	24.0	7.6	7.6	7.6	7.6	7.6
	30.0	28.0	8.0	8.0	8.0	7.9	7.7
	35.0	32.0	8.3	8.3	8.3	8.1	7.7
	39.0	36.0	8.7	8.7	8.4	8.1	7.7
	44.0	40.0	9.0	9.0	8.7	8.1	7.7
	47.0	43.0	9.3	9.2	8.7	8.1	7.7
	51.0	47.0	9.6	9.2	8.7	8.1	7.7
	54.0	50.0	9.7	9.2	8.7	8.5	8.1
	57.0	53.0	9.7	9.2	8.7	8.5	8.1
	60.0	56.0	9.7	9.2	8.7	8.5	8.1
09	22.0	20.0	9.2	9.2	9.2	9.2	9.2
	26.0	24.0	9.7	9.7	9.6	9.6	9.6
	30.0	28.0	10.1	10.1	10.1	10.1	9.7
	35.0	32.0	10.6	10.5	10.5	10.3	9.7
	39.0	36.0	11.0	11.0	10.5	10.3	9.7
	44.0	40.0	11.4	11.4	11.1	10.5	10.3
	47.0	43.0	11.8	11.7	11.1	10.5	10.3
	51.0	47.0	12.2	11.7	11.1	10.5	10.3
	54.0	50.0	12.3	11.7	11.1	10.5	10.3
	57.0	53.0	12.3	11.7	11.1	10.5	10.3
	60.0	56.0	12.3	11.7	11.1	10.5	10.3
12	22.0	20.0	11.7	11.7	11.6	11.6	11.6
	26.0	24.0	12.2	12.2	12.2	12.2	12.1
	30.0	28.0	12.8	12.8	12.7	12.7	12.3
	35.0	32.0	13.3	13.3	13.3	13.0	12.3
	39.0	36.0	13.9	13.9	13.9	13.5	13.0
	44.0	40.0	14.5	14.4	14.0	13.5	13.0
	47.0	43.0	14.9	14.7	14.0	13.5	13.0
	51.0	47.0	15.4	14.7	14.0	13.5	13.0
	54.0	50.0	15.5	14.7	14.0	13.5	13.0
	57.0	53.0	15.5	14.7	14.0	13.5	13.0
	60.0	56.0	15.5	14.7	14.0	13.5	12.3
18	22.0	20.0	17.5	17.5	17.4	17.4	17.4
	26.0	24.0	18.3	18.3	18.3	18.2	18.2
	30.0	28.0	19.2	19.1	19.1	19.1	18.4
	35.0	32.0	20.0	20.0	19.9	19.9	18.4
	39.0	36.0	20.8	20.8	20.8	20.0	19.5
	44.0	40.0	21.7	21.6	21.0	20.0	19.5
	47.0	43.0	22.3	22.1	21.0	20.0	19.5
	51.0	47.0	23.1	22.1	21.0	20.0	19.5
	54.0	50.0	23.2	22.1	21.0	20.0	19.5
	57.0	53.0	23.2	22.1	21.0	20.0	19.5
	60.0	56.0	23.2	22.1	21.0	20.0	19.5
24	22.0	20.0	22.9	22.9	22.8	22.8	22.7
	26.0	24.0	24.0	24.0	23.9	23.9	23.8
	30.0	28.0	25.1	25.1	25.0	25.0	24.0
	35.0	32.0	26.2	26.1	26.1	25.5	24.0
	39.0	36.0	27.3	27.2	27.2	26.5	25.5
	44.0	40.0	28.4	28.3	27.5	26.5	25.5
	47.0	43.0	29.2	29.0	27.5	26.5	24.0
	51.0	47.0	30.3	29.0	27.5	26.5	25.5
	54.0	50.0	30.4	29.0	27.5	26.5	24.0
	57.0	53.0	30.4	29.0	27.5	26.5	25.5
	60.0	56.0	30.4	29.0	27.5	26.5	24.0

TC: Total capacity: MBh



Refer to outdoor unit capacity tables for the actual performance data of each indoor and outdoor unit combination.

1. Specifications

Ceiling Mounted Cassette Type (Round Flow)

Model		FXFQ09PVJU	FXFQ12PVJU	FXFQ18PVJU	FXFQ24PVJU
1★, 3★ Cooling Capacity	Btu/h	9,500	12,000	18,000	24,000
2★, 3★ Heating Capacity	Btu/h	10,500	13,500	20,000	27,000
Casing / Color		Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions: (HxWxD)	in. (mm)	9-11/16 x 33-1/16 x 33-1/16 (246 x 840 x 840)	9-11/16 x 33-1/16 x 33-1/16 (246 x 840 x 840)	9-11/16 x 33-1/16 x 33-1/16 (246 x 840 x 840)	9-11/16 x 33-1/16 x 33-1/16 (246 x 840 x 840)
Coil (Cross Fin Coil)	RowsxStagesxFPI	2x6x21	2x6x21	2x6x21	2x10x21
	Face Area	ft ² (m ²)	2.87 (0.9)	2.87 (0.9)	4.80 (1.46)
Fan	Model	QTS48C15M	QTS48C15M	QTS48C15M	QTS48C15M
	Type	Turbo Fan	Turbo Fan	Turbo Fan	Turbo Fan
	Motor Output	W	56	56	56
	Air Flow Rate (HH/H/L)	cfm	460/390/350	460/390/350	560/470/390
	Drive		Direct Drive	Direct Drive	Direct Drive
Temperature Control		Microprocessor Thermostat for Cooling and Heating			
Sound Absorbing Thermal Insulation Material		Polyurethane Form	Polyurethane Form	Polyurethane Form	Polyurethane Form
Weight	Lbs (kg)	43 (19.5)	43 (19.5)	43 (19.5)	48.5 (22)
5★ Sound Level (HH/H/L)	dBA	30/28/27	30/28/27	32/30/27	36/32/28
Piping Connections	Liquid Pipes	in. (mm)	φ1/4 (6.4) (Flare Connection)	φ1/4 (6.4) (Flare Connection)	φ1/4 (6.4) (Flare Connection)
	Gas Pipes	in. (mm)	φ1/2 (12.7) (Flare Connection)	φ1/2 (12.7) (Flare Connection)	φ1/2 (12.7) (Flare Connection)
	Drain Pipe	in. (mm)	VP25 (External Dia. 1-1/4(31.8) Internal Dia. 1(25.4))	VP25 (External Dia. 1-1/4(31.8) Internal Dia. 1(25.4))	VP25 (External Dia. 1-1/4(31.8) Internal Dia. 1(25.4))
Safety Devices		Fuse	Fuse	Fuse	Fuse
Refrigerant Control		Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Connectable outdoor unit		R-410A VRV Series	R-410A VRV Series	R-410A VRV Series	R-410A VRV Series
Standard Accessories		Operation Manual. Installation Manual. Paper Pattern for Installation. Drain Hose. Sealing Pads. Clamps. Washers. Screws. Insulation for Fitting. Clamp Metal.	Operation Manual. Installation Manual. Paper Pattern for Installation. Drain Hose. Sealing Pads. Clamps. Washers. Screws. Insulation for Fitting. Clamp Metal.	Operation Manual. Installation Manual. Paper Pattern for Installation. Drain Hose. Sealing Pads. Clamps. Washers. Screws. Insulation for Fitting. Clamp Metal.	Operation Manual. Installation Manual. Paper Pattern for Installation. Drain Hose. Sealing Pads. Clamps. Washers. Screws. Insulation for Fitting. Clamp Metal.
Decoration Panels (Option)	Model		BYCP125K-W1	BYCP125K-W1	BYCP125K-W1
	Color		Fresh White	Fresh White	Fresh White
	Dimensions: (HxWxD)	in. (mm)	2 x 37-3/8 x 37-3/8 (51 x 949 x 949)	2 x 37-3/8 x 37-3/8 (51 x 949 x 949)	2 x 37-3/8 x 37-3/8 (51 x 949 x 949)
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)
	Weight	Lbs (kg)	12.2 (5.5)	12.2 (5.5)	12.2 (5.5)
Drawing No.		C: 3D070521			

Notes:

- ★ 1 Nominal cooling capacities are based on the following conditions:
 Return air temperature: 80°FDB (27°CDB), 67°FWB (19.4°CWB)
 Outdoor temperature: 95°FDB (35°CFB)
 Equivalent ref. piping length: 25ft (7.5 m) (Horizontal)
- ★ 2 Nominal heating capacities are based on the following conditions:
 Return air temperature: 70°FDB(21°CDB).
 Outdoor temperature: 47°FDB, 43°FWB (8.3°CDB, 6°CWB)
 Equivalent ref. piping length: 25ft (7.5 m) (Horizontal)
- ★ 3 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- 4 Refer to page 9 for Power Input.
- ★ 5 Sound levels are measured under JIS conditions.

Ceiling Mounted Cassette Type (Round Flow)

Model		FXFQ30PVJU		FXFQ36PVJU	FXFQ48PVJU		
1*	3* Cooling Capacity	Btu/h	30,000	36,000	48,000		
2*	3* Heating Capacity	Btu/h	34,000	40,000	54,000		
Casing / Color		Galvanized Steel Plate		Galvanized Steel Plate			
Dimensions: (HxWxD)		in. (mm)	9-11/16×33-1/16×33-1/16 (246 x 840 x 840)	11-5/16×33-1/16×33-1/16 (287 x 840 x 840)	11-5/16×33-1/16×33-1/16 (287 x 840 x 840)		
Coil (Cross Fin Coil)	RowsxStagesxFPI		2x10x21	2x12x21	2x12x21		
	Face Area	ft ² (m ²)	4.80 (1.46)	5.76 (1.8)	5.76 (1.8)		
Fan	Model		QTS48C15M	QTS48C15M	QTS48C15M		
	Type		Turbo Fan	Turbo Fan	Turbo Fan		
	Motor Output	W	56	120	120		
	Air Flow Rate (HH/H/L)	cfm	830/670/530	1180/910/700	1220/970/790		
	Drive		Direct Drive	Direct Drive	Direct Drive		
Temperature Control			Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating	Microprocessor Thermostat for Cooling and Heating		
Sound Absorbing Thermal Insulation Material			Polyurethane Form	Polyurethane Form	Polyurethane Form		
Weight		Lbs (kg)	48.5 (22)	55 (25)	55 (25)		
5* Sound Level (HH/H/L)		dBA	38/35/31	44/38/32	45/40/34		
Piping Connections	Liquid Pipes	in. (mm)	ø3/8 (9.5) (Flare Connection)	ø3/8 (9.5) (Flare Connection)	ø3/8 (9.5) (Flare Connection)		
	Gas Pipes	in. (mm)	ø5/8 (15.8) (Flare Connection)	ø5/8 (15.8) (Flare Connection)	ø5/8 (15.8) (Flare Connection)		
	Drain Pipe	in. (mm)	VP25 (External Dia. 1-1/4 (31.8) Internal Dia. 1(25.4))	VP25 (External Dia. 1-1/4 (31.8) Internal Dia. 1(25.4))	VP25 (External 1-1/4 (31.8) Internal Dia. 1 (25.4))		
Safety Devices			Fuse	Fuse	Fuse		
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve		
Connectable outdoor unit			R-410A VRV Series	R-410A VRV Series	R-410A VRV Series		
Standard Accessories			Operation Manual, Installation Manual. Paper Pattern for Installation. Drain Hose. Sealing Pads. Clamps. Washers. Screws. Insulation for Fitting. Clamp Metal.	Operation Manual, Installation Manual. Paper Pattern for Installation. Drain Hose. Sealing Pads. Clamps. Washers. Screws. Insulation for Fitting. Clamp Metal.	Operation Manual, Installation Manual. Paper Pattern for Installation. Drain Hose. Sealing Pads. Clamps. Washers. Screws. Insulation for Fitting. Clamp Metal.		
Decoration Panels (Option)	Model		BYCP125K-W1	BYCP125K-W1	BYCP125K-W1		
	Color		Fresh White	Fresh White	Fresh White		
	Dimensions: (HxWxD)	in. (mm)	2×37-3/8×37-3/8 (51 x 949 x 949)	2×37-3/8×37-3/8 (51 x 949 x 949)	2×37-3/8×37-3/8 (51 x 949 x 949)		
	Air Filter		Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)	Resin Net (with Mold Resistant)		
	Weight	Lbs (kg)	12.2 (5.5)	12.2 (5.5)	12.2 (5.5)		
Drawing No.			C: 3D070521				

Notes:

- ★ 1 Nominal cooling capacities are based on the following conditions:
Return air temperature: 80°FDB(27°CDB), 67°FWB(19.4°CWB)
Outdoor temperature: 95°FDB (35°CDB)
Equivalent ref. piping length: 25ft (7.5 m)(Horizontal)
- ★ 2 Nominal heating capacities are based on the following conditions:
Return air temperature: 70°FDB(21°CDB).
Outdoor temperature: 47°FDB (8.3°CDB), 43°FWB (6°CWB)
Equivalent ref. piping length: 25ft (7.5 m) (Horizontal)
- ★ 3 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- 4 Refer to page 9 for Power Input.
- ★ 5 Sound levels are measured under JIS conditions.

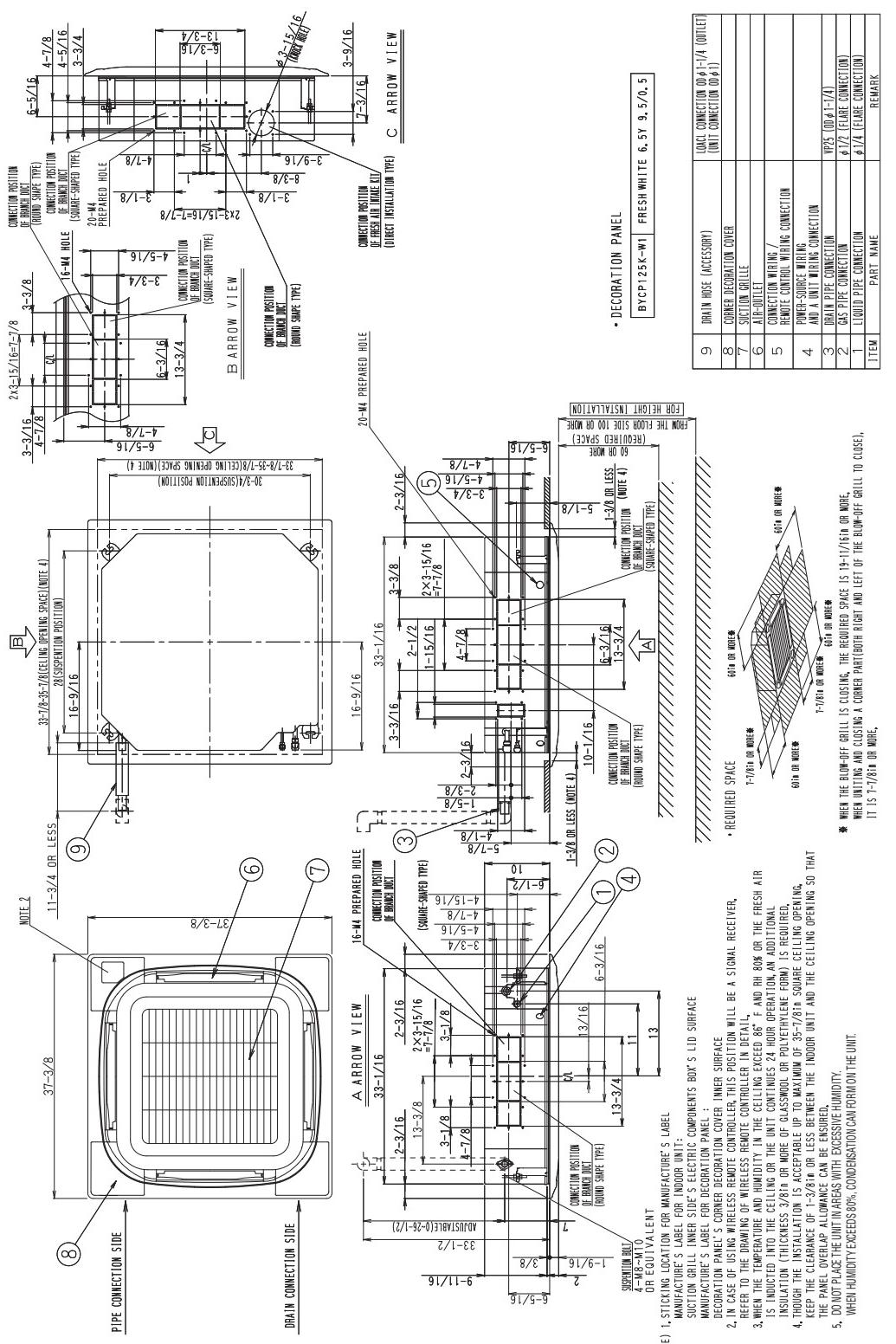
2. Dimensions

FXFQ09PVJU

FXFQ12PVJU

FXFQ18PVJU

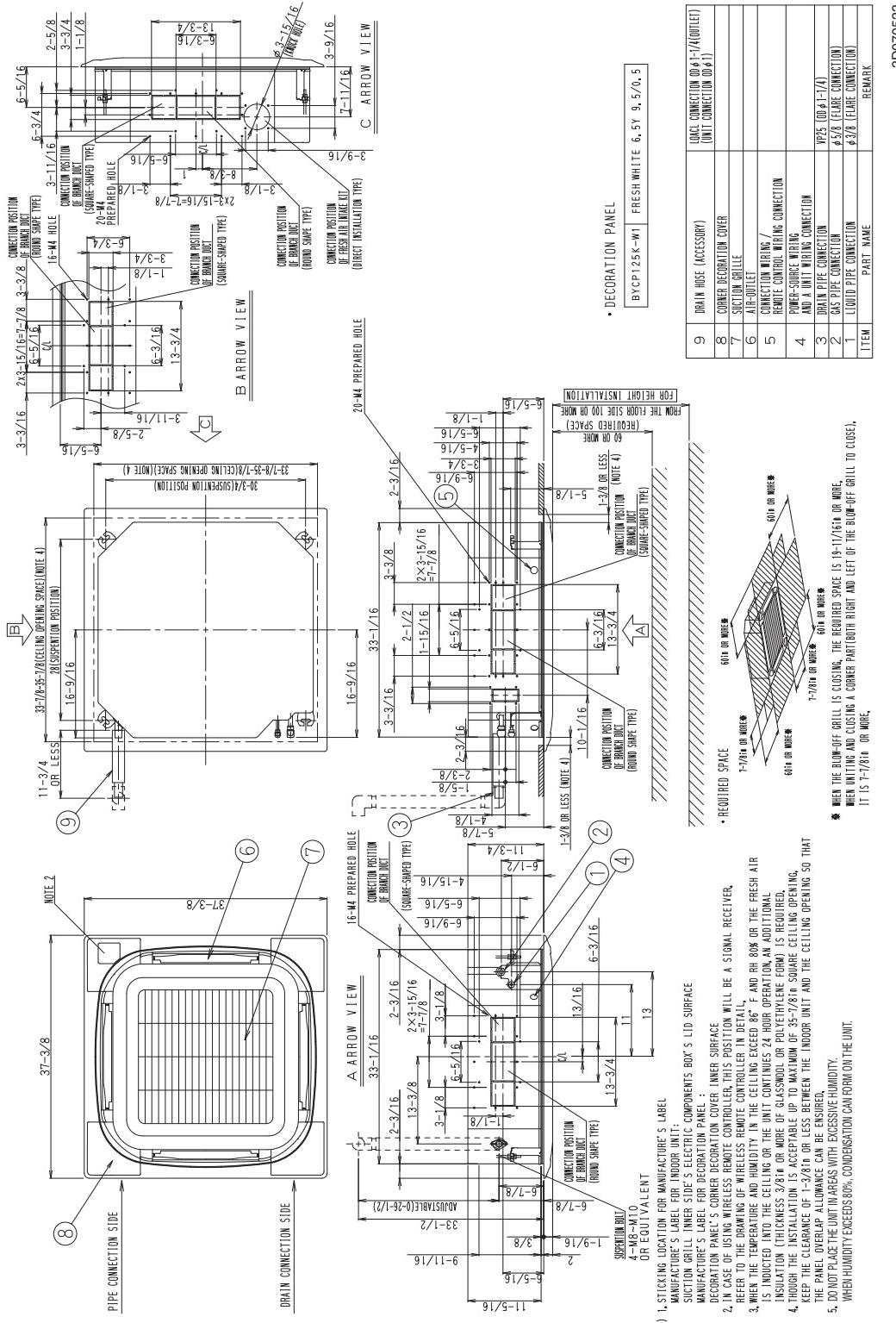
Unit (in.)



3D070522

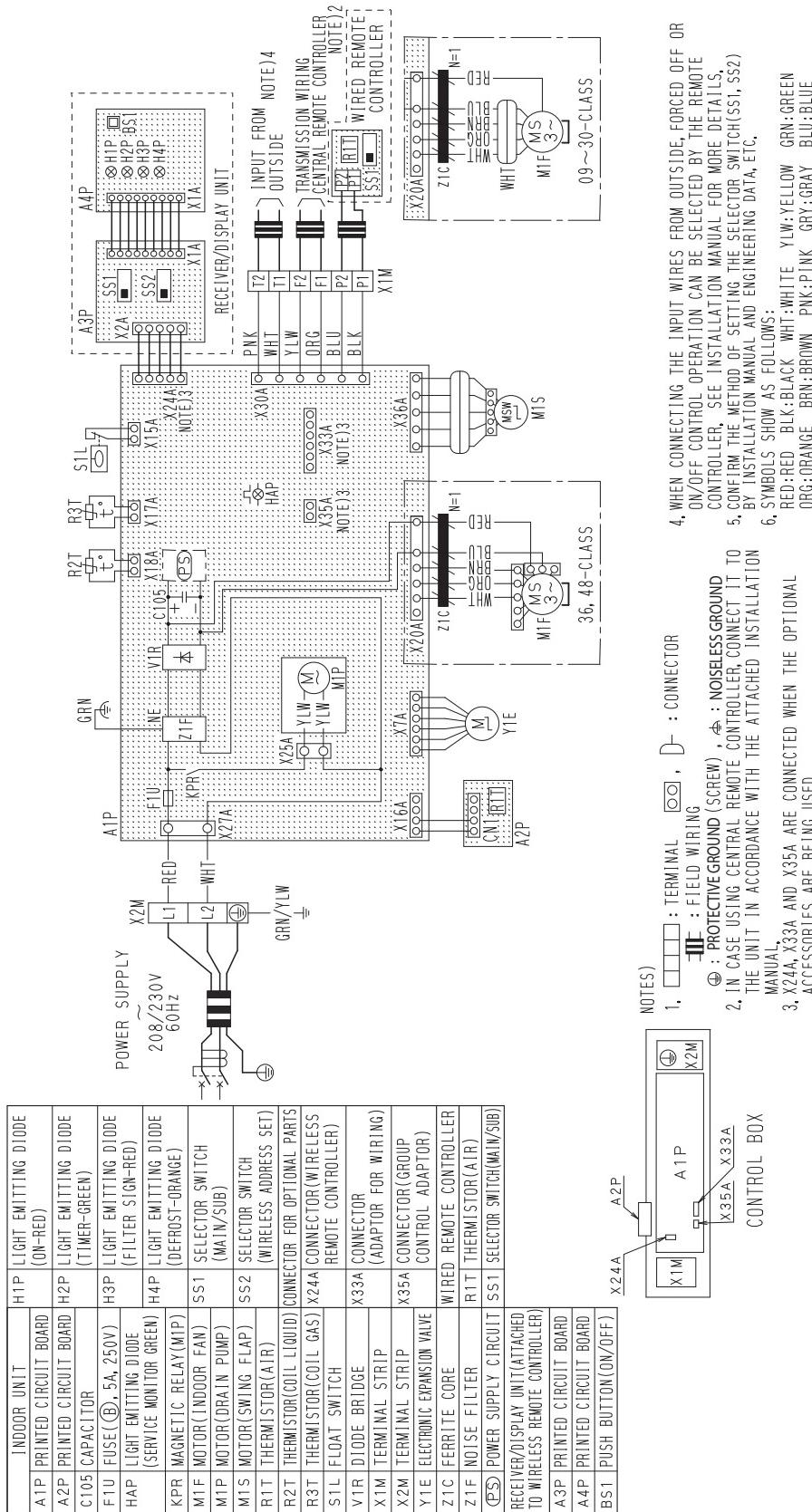
FXFQ36PVJU
FXFQ48PVJU

Unit (in.)



4. Wiring Diagrams

FXFQ09PVJU / FXFQ12PVJU / FXFQ18PVJU / FXFQ24PVJU / FXFQ30PVJU / FXFQ36PVJU / FXFQ48PVJU



1. : TERMINAL , : CONNECTOR
2. : FIELD WIRING
3. : NOISELESS GROUND
4. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY THE REMOTE CONTROLLER. SEE INSTALLATION MANUAL FOR MORE DETAILS.
5. CONFIRM THE METHOD OF SETTING THE SELECTOR SWITCH(S1, S2).
6. SYMBOLS SHOW AS FOLLOW;

RED:RED BLK:BLACK WHI:WHITE YEL:YELLOW GRN:GREEN ORG:ORANGE BRN:BROWN PNK:PINK GRY:GRAY BLU:BLUE

3D070301C

5. Electric Characteristics

Model	Power supply					IFM		Input (W)	
	Hz	Volts	Voltage range	MCA	MOP	KW	FLA	Cooling	Heating
FXFQ09PVJU				0.3	15	0.056	0.2	34	30
FXFQ12PVJU				0.3	15	0.056	0.2	34	30
FXFQ18PVJU	60	208V/230V	Max. 253V	0.4	15	0.056	0.3	56	42
FXFQ24PVJU				0.5	15	0.056	0.4	70	60
FXFQ30PVJU			Min. 187V	0.6	15	0.056	0.5	104	84
FXFQ36PVJU				1.4	15	0.120	1.1	210	200
FXFQ48PVJU				1.5	15	0.120	1.2	240	232

Note :

1. Voltage range
Units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits,
2. Maximum allowable voltage unbalance between phases is 2%.
3. MCA/MFA
 $MCA = 1.25 \times FLA$
 $MOP \leq 4 \times FLA$
(Next lower standard fuse rating, Min. 15A)
4. Select wire size based on the MCA.

Symbols :

- MCA : Min. Circuit Amps (A)
 MOP : Max. Overcurrent Protective Device (A)
 KW : Fan Motor Rated Output(kW)
 FLA : Full Load Amps(A)
 IFM : Indoor Fan Motor

6. Capacity Tables

6.1 Cooling Capacity

FXFQ-P

[Cooling Capacity]

Indoor Unit	Outdoor Air Temp.	Indoor Air Temp. °FWB													
		61		64		67		70		72		75			
		TC °FDB	SHC MBh	TC MBh	SHC MBh										
09	75	7.5	7.5	8.5	8.5	9.5	9.5	10.5	9.8	10.7	9.6	10.9	9.2		
	79	7.5	7.5	8.5	8.5	9.5	9.5	10.4	9.7	10.5	9.5	10.7	9.0		
	83	7.5	7.5	8.5	8.5	9.5	9.5	10.2	9.5	10.3	9.6	10.5	9.2		
	87	7.5	7.5	8.5	8.5	9.5	9.5	10.0	9.7	10.2	9.5	10.3	9.0		
	91	7.5	7.5	8.5	8.5	9.5	9.5	9.9	9.5	10.0	9.6	10.2	8.8		
	95	7.5	7.5	8.5	8.5	9.5	9.5	9.7	9.7	9.8	9.1	10.0	8.7		
	99	7.5	7.5	8.5	8.5	9.3	9.3	9.5	9.5	9.6	9.0	9.8	8.8		
12	103	7.5	7.5	8.5	8.5	9.2	9.2	9.3	9.3	9.5	9.1	9.7	8.7		
	75	9.5	9.1	10.7	9.8	12.0	10.3	13.3	11.2	13.5	10.4	13.7	10.0		
	79	9.5	9.1	10.7	9.8	12.0	10.3	13.1	11.0	13.3	10.3	13.5	9.9		
	83	9.5	9.1	10.7	9.8	12.0	10.3	12.9	10.9	13.0	10.4	13.3	10.0		
	87	9.5	9.1	10.7	9.8	12.0	10.3	12.7	10.3	12.8	10.5	13.1	10.0		
	91	9.5	9.1	10.7	9.8	12.0	10.3	12.5	10.4	12.6	10.3	12.8	9.9		
	95	9.5	9.1	10.7	9.8	12.0	10.3	12.2	10.5	12.4	10.4	12.6	10.0		
18	99	9.5	9.1	10.7	9.8	11.8	10.4	12.0	10.4	12.2	9.9	12.4	9.5		
	103	9.5	9.1	10.7	9.8	11.6	10.2	11.8	10.5	12.0	10.0	12.2	9.6		
	75	14.2	12.3	16.1	13.3	18.0	14.1	19.9	14.9	20.2	14.1	20.6	13.8		
	79	14.2	12.3	16.1	13.3	18.0	14.1	19.7	14.7	19.9	14.1	20.2	13.5		
	83	14.2	12.3	16.1	13.3	18.0	14.1	19.3	14.7	19.6	13.8	19.9	13.5		
	87	14.2	12.3	16.1	13.3	18.0	14.1	19.0	14.2	19.2	13.8	19.6	13.5		
	91	14.2	12.3	16.1	13.3	18.0	14.1	18.7	14.2	18.9	13.5	19.3	13.5		
24	95	14.2	12.3	16.1	13.3	18.0	14.1	18.4	14.2	18.6	13.5	18.9	13.2		
	99	14.2	12.3	16.1	13.3	17.7	14.1	18.0	13.8	18.3	13.5	18.6	13.2		
	103	14.2	12.3	16.1	13.3	17.3	13.8	17.7	13.8	17.9	13.5	18.3	12.6		
	75	18.9	16.6	21.5	18.2	24.0	18.9	26.5	19.9	27.0	19.1	27.4	18.3		
	79	18.9	16.6	21.5	18.2	24.0	18.9	26.2	19.7	26.5	17.0	27.0	18.2		
	83	18.9	16.6	21.5	18.2	24.0	18.9	25.8	19.6	26.1	18.6	26.6	18.2		
	87	18.9	16.6	21.5	18.2	24.0	18.9	25.3	19.5	25.7	18.6	26.1	17.8		
30	91	18.9	16.6	21.5	18.2	24.0	18.9	24.9	19.1	25.2	18.2	25.7	17.9		
	95	18.9	16.6	21.5	18.2	24.0	18.9	24.5	18.7	24.8	18.1	25.3	17.9		
	99	18.9	16.6	21.5	18.2	23.6	18.9	24.0	18.6	24.4	18.3	24.8	17.4		
	103	18.9	16.6	21.5	18.2	23.1	18.8	23.6	18.2	23.9	17.9	24.4	17.4		
	75	23.7	19.4	26.8	21.1	30.0	22.3	33.2	23.5	33.7	22.4	34.3	21.3		
	79	23.7	19.4	26.8	21.1	30.0	22.3	32.8	23.2	33.2	22.1	33.7	21.4		
	83	23.7	19.4	26.8	21.1	30.0	22.3	32.2	23.1	32.6	21.6	33.2	20.9		
36	87	23.7	19.4	26.8	21.1	30.0	22.3	31.7	22.6	32.1	21.7	32.7	21.0		
	91	23.7	19.4	26.8	21.1	30.0	22.3	31.1	22.1	31.5	21.2	32.1	20.5		
	95	23.7	19.4	26.8	21.1	30.0	22.3	30.6	22.2	31.0	21.3	31.6	20.6		
	99	23.7	19.4	26.8	21.1	29.5	22.2	30.0	21.7	30.4	20.8	31.0	20.1		
	103	23.7	19.4	26.8	21.1	28.9	21.6	29.5	21.5	29.9	20.9	30.5	20.0		
	75	28.4	24.6	32.2	26.7	36.0	28.6	39.8	30.1	40.4	28.8	41.1	28.0		
	79	28.4	24.6	32.2	26.7	36.0	28.6	39.3	29.7	39.8	28.5	40.5	27.6		
48	83	28.4	24.6	32.2	26.7	36.0	28.6	38.7	29.2	39.1	27.9	39.8	27.3		
	87	28.4	24.6	32.2	26.7	36.0	28.6	38.0	28.9	38.5	27.9	39.2	27.3		
	91	28.4	24.6	32.2	26.7	36.0	28.6	37.4	28.9	37.8	27.6	38.5	26.8		
	95	28.4	24.6	32.2	26.7	36.0	28.6	36.7	28.6	37.2	27.2	37.9	26.4		
	99	28.4	24.6	32.2	26.7	35.3	28.6	36.1	28.0	36.5	27.2	37.2	26.1		
	103	28.4	24.6	32.2	26.7	34.7	28.0	35.4	27.7	35.9	26.9	36.6	26.1		
	75	37.9	30.2	42.9	33.1	48.0	35.3	53.1	37.4	53.9	35.9	54.9	34.3		
48	79	37.9	30.2	42.9	33.1	48.0	35.3	52.4	36.9	53.0	35.5	54.0	33.8		
	83	37.9	30.2	42.9	33.1	48.0	35.3	51.5	36.3	52.2	35.0	53.1	33.9		
	87	37.9	30.2	42.9	33.1	48.0	35.3	50.7	36.1	51.3	34.6	52.3	33.5		
	91	37.9	30.2	42.9	33.1	48.0	35.3	49.8	35.6	50.4	34.3	51.4	33.0		
	95	37.9	30.2	42.9	33.1	48.0	35.3	48.9	35.2	49.6	33.8	50.5	32.6		
	99	37.9	30.2	42.9	33.1	47.1	35.2	48.1	34.9	48.7	33.4	49.7	32.3		
	103	37.9	30.2	42.9	33.1	46.3	34.6	47.2	34.5	47.8	32.9	48.8	31.8		

TC : Total capacity ; MBh

SHC : Sensible heat capacity ; MBh

6.2 Heating Capacity

FXFQ-P [Heating Capacity]

Indoor Unit	Outdoor Air Temp.	Indoor Air Temp. °FDB					
		62	65	68	70	72	75
		TC	TC	TC	TC	TC	TC
09	22.0	20.0	9.3	9.3	9.3	9.3	9.2
	26.0	24.0	9.9	9.8	9.8	9.8	9.5
	30.0	28.0	10.4	10.4	10.4	10.1	9.5
	35.0	32.0	11.1	11.0	10.9	10.1	9.5
	39.0	36.0	11.7	11.5	10.9	10.1	9.5
	44.0	40.0	12.2	11.5	10.9	10.1	9.5
	47.0	43.0	12.2	11.5	10.9	10.1	9.5
	51.0	47.0	12.2	11.5	10.9	10.1	9.5
	54.0	50.0	12.2	11.5	10.9	10.1	9.5
	57.0	53.0	12.2	11.5	10.9	10.1	9.5
12	60.0	56.0	12.2	11.5	10.9	10.1	9.5
	22.0	20.0	12.0	12.0	11.9	11.9	11.9
	26.0	24.0	12.7	12.7	12.6	12.6	12.3
	30.0	28.0	13.4	13.4	13.4	13.0	12.3
	35.0	32.0	14.2	14.2	14.0	13.5	12.3
	39.0	36.0	15.1	14.7	14.0	13.5	12.3
	44.0	40.0	15.7	14.7	14.0	13.5	12.3
	47.0	43.0	15.7	14.7	14.0	13.5	12.3
	51.0	47.0	15.7	14.7	14.0	13.5	12.3
	54.0	50.0	15.7	14.7	14.0	13.5	12.3
18	57.0	53.0	15.7	14.7	14.0	13.5	12.3
	60.0	56.0	15.7	14.7	14.0	13.5	12.3
24	22.0	20.0	17.8	17.7	17.7	17.6	17.6
	26.0	24.0	18.8	18.7	18.7	18.7	18.1
	30.0	28.0	19.9	19.8	19.8	19.3	18.1
	35.0	32.0	21.1	21.0	20.7	19.3	18.1
	39.0	36.0	22.3	21.9	20.7	19.3	18.1
	44.0	40.0	23.3	21.9	20.7	19.3	18.1
	47.0	43.0	23.3	21.9	20.7	19.3	18.1
	51.0	47.0	23.3	21.9	20.7	19.3	18.1
	54.0	50.0	23.3	21.9	20.7	19.3	18.1
	57.0	53.0	23.3	21.9	20.7	19.3	18.1
30	60.0	56.0	23.3	21.9	20.7	19.3	18.1
	22.0	20.0	24.0	23.9	23.9	23.8	23.8
	26.0	24.0	25.4	25.3	25.2	25.2	24.5
	30.0	28.0	26.9	26.8	26.7	26.0	24.5
	35.0	32.0	28.5	28.4	28.0	27.0	24.5
	39.0	36.0	30.2	29.5	28.0	27.0	24.5
	44.0	40.0	31.5	29.5	28.0	27.0	24.5
	47.0	43.0	31.5	29.5	28.0	27.0	24.5
	51.0	47.0	31.5	29.5	28.0	27.0	24.5
	54.0	50.0	31.5	29.5	28.0	27.0	24.5
36	57.0	53.0	31.5	29.5	28.0	27.0	24.5
	60.0	56.0	31.5	29.5	28.0	27.0	24.5
48	22.0	20.0	30.2	30.1	30.1	30.0	29.9
	26.0	24.0	31.9	31.9	31.8	31.7	30.9
	30.0	28.0	33.8	33.7	33.7	32.7	30.9
	35.0	32.0	35.8	35.8	35.3	34.0	30.9
	39.0	36.0	38.0	37.1	35.3	34.0	30.9
	44.0	40.0	39.7	37.1	35.3	34.0	30.9
	47.0	43.0	39.7	37.1	35.3	34.0	30.9
	51.0	47.0	39.7	37.1	35.3	34.0	30.9
	54.0	50.0	39.7	37.1	35.3	34.0	30.9
	57.0	53.0	39.7	37.1	35.3	34.0	30.9
TC	60.0	56.0	39.7	37.1	35.3	34.0	30.9
	22.0	20.0	35.5	35.4	35.3	35.3	35.2
	26.0	24.0	37.6	37.5	37.4	37.3	36.3
	30.0	28.0	39.8	39.7	39.6	38.5	36.3
	35.0	32.0	42.2	42.1	41.5	40.0	36.3
	39.0	36.0	44.7	43.7	41.5	40.0	36.3
	44.0	40.0	46.7	43.7	41.5	40.0	36.3
	47.0	43.0	46.7	43.7	41.5	40.0	36.3
	51.0	47.0	46.7	43.7	41.5	40.0	36.3
	54.0	50.0	46.7	43.7	41.5	40.0	36.3
TC	57.0	53.0	46.7	43.7	41.5	40.0	36.3
	60.0	56.0	46.7	43.7	41.5	40.0	36.3
TC	22.0	20.0	48.0	47.9	47.8	47.7	47.6
	26.0	24.0	50.7	50.6	50.5	50.4	49.0
	30.0	28.0	53.7	53.6	53.5	53.4	49.0
	35.0	32.0	56.9	56.8	56.0	54.0	49.0
	39.0	36.0	60.3	59.0	56.0	54.0	49.0
	44.0	40.0	63.0	59.0	56.0	54.0	49.0
	47.0	43.0	63.0	59.0	56.0	54.0	49.0
	51.0	47.0	63.0	59.0	56.0	54.0	49.0
	54.0	50.0	63.0	59.0	56.0	54.0	49.0
	57.0	53.0	63.0	59.0	56.0	54.0	49.0
	60.0	56.0	63.0	59.0	56.0	54.0	49.0

TC :Total capacity ; MBh



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OUTDOOR UNIT DETAILS

1. Specifications

Model Name			RXYQ72PBYD	RXYQ96PBYD	RXYQ120PBYD
Power Supply			3 phase, 460V, 60Hz	3 phase, 460V, 60Hz	3 phase, 460V, 60Hz
★1 Cooling Capacity	Nominal	Btu / h	72,000	96,000	120,000
	Rated		69,000	92,000	114,000
★2 Heating Capacity	Nominal	Btu / h	81,000	108,000	135,000
	Rated		77,000	103,000	129,000
Casing Color			Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)
Dimensions: (HxWxD)		in. (mm)	66-1/8 × 36-5/8 × 30-1/8 (1680 x 930 x 765)	66-1/8 × 48-7/8 × 30-1/8 1680 x 1241 x 765	66-1/8 × 48-7/8 × 30-1/8 1680 x 1241 x 765
Heat Exchanger			Cross Fin Coil	Cross Fin Coil	Cross Fin Coil
Comp.	Type	Hermetically Sealed Scroll Type		Hermetically Sealed Scroll Type	
	Displacement	m ³ /h	16.90	10.53+13.34	10.53+13.34
	Number of Revolutions	r/min	7980	2900, 6300	2900, 6300
	Motor Output×Number of Units	kW	4.7 × 1	(2.2+4.5) × 1	(3.5+4.5) × 1
	Starting Method	Soft Start		Soft Start	
Fan	Type	Propellor Fan		Propellor Fan	
	Motor Output	kW	0.75 × 1	0.35 × 2	0.35 × 2
	Airflow Rate	cfm	6,350	8,230	8,230
	Drive	Direct Drive		Direct Drive	
Connecting Pipes	Liquid Pipe	in. (mm)	φ 3/8 (9.5) C1220T (Brazing Connection)	φ 3/8 (9.5) C1220T (Brazing Connection)	φ 1/2 (12.7) C1220T (Brazing Connection)
	Gas Pipe	in. (mm)	φ 3/4 (19.1) C1220T (Brazing Connection)	φ 7/8 (22.2) C1220T (Brazing Connection)	φ 1-1/8 (28.6) C1220T (Brazing Connection)
Mass		Lbs (kg)	433 (196)	633 (287)	633 (287)
★3 Sound Level (Reference Value)		dBA	57	60	60
Safety Devices			High Pressure Switch, Fan Driver Overload Protector, Overcurrent Relay, Inverter Overload Protector	High Pressure Switch, Fan Driver Overload Protector, Overcurrent Relay, Inverter Overload Protector	High Pressure Switch, Fan Driver Overload Protector, Overcurrent Relay, Inverter Overload Protector
Defrost Method			Deicer	Deicer	Deicer
Capacity Control		%	20~100	14~100	14~100
Refrigerant	Refrigerant Name		R-410A	R-410A	R-410A
	Charge	Lbs (kg)	16.5 (7.5)	21.4 (9.7)	22.1 (10)
	Control	Electronic Expansion Valve		Electronic Expansion Valve	
Standard Accessories			Installation Manual, Operation Manual, Connection Pipes, Clamps	Installation Manual, Operation Manual, Connection Pipes, Clamps	Installation Manual, Operation Manual, Connection Pipes, Clamps
Drawing No.			C: 4D070504	C: 4D070505	C: 4D070506

Notes:

★1 Indoor temp. : 80°FDB (27°CDB), 67°FWB(19.4°CWB) / outdoor temp. : 95°FDB (35°CDB) / Equivalent piping length : 25ft (7.5 m), level difference : 0 ft.

★2 Indoor temp. : 70°FDB (21°CDB) / outdoor temp. : 47°FDB, 43°FWB (8.3° CDB, 6° CWB) / Equivalent piping length : 25ft (7.5 m), difference : 0 ft.

★3 Anechoic chamber conversion value, measure under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

Model Name (Combination Unit)			RXYQ144PBYD	RXYQ168PBYD	RXYQ192PBYD
Model Name (Independent Unit)			RXYQ72PBYD RXYQ72PBYD	RXYQ72PBYD RXYQ96PBYD	RXYQ72PBYD RXYQ120PBYD
Power Supply			3 phase, 460V, 60Hz	3 phase, 460V, 60Hz	3 phase, 460V, 60Hz
★1 Cooling Capacity	Nominal	Btu / h	144,000	168,000	192,000
	Rated		138,000	160,000	184,000
★2 Heating Capacity	Nominal	Btu / h	162,000	188,000	216,000
	Rated		154,000	180,000	206,000
Casing Color			Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)	Ivory White (5Y7.5/1)
Dimensions: (HxWxD)		in. (mm)	66-1/8 x 36-5/8 x 30-1/8 + (1680 x 930 x 765 + 1680 x 930 x 765)	66-1/8 x 36-5/8 x 30-1/8 + (1680 x 930 x 765 + 1680 x 1241 x 765)	66-1/8 x 36-5/8 x 30-1/8 + (1680 x 930 x 765 + 1680 x 1241 x 765)
Heat Exchanger			Cross Fin Coil	Cross Fin Coil	Cross Fin Coil
Comp.	Type	Hermetically Sealed Scroll Type		Hermetically Sealed Scroll Type	Hermetically Sealed Scroll Type
	Displacement	m ³ /h	(16.90) x 2	16.90 + (10.53+13.34)	16.90 + (10.53+13.34)
	Number of Revolutions	r/min	(7980) x 2	7980, (2900, 6300)	7980, (2900, 6300)
	Motor OutputxNumber of Units	kW	(4.7) x 2	(4.7) x 1 + (2.2+4.5) x 1	(4.7) x 1 + (3.5+4.5) x 1
	Starting Method	Soft Start		Soft Start	Soft Start
Fan	Type	Propellor Fan		Propellor Fan	Propellor Fan
	Motor Output	kW	(0.75) x 1 + (0.75) x 1	(0.75) x 1 + (0.35) x 2	(0.75) x 1 + (0.35) x 2
	Airflow Rate	cfm	6,350+6,350	6,350+8,230	6,350+8,230
	Drive	Direct Drive		Direct Drive	Direct Drive
Connecting Pipes	Liquid Pipe	in. (mm)	ø1/2 (12.7) C1220T (Brazing Connection)	ø5/8 (15.8) C1220T (Brazing Connection)	ø5/8 (15.8) C1220T (Brazing Connection)
	Gas Pipe	in. (mm)	ø1-1/8 (28.6) C1220T (Brazing Connection)	ø1-1/8 (28.6) C1220T (Brazing Connection)	ø1-1/8 (28.6) C1220T (Brazing Connection)
Mass	Lbs (kg)	433 + 433 (196.4 + 196.4)		433 + 633 (196.4 + 287)	433 + 633 (196.4 + 287)
★3 Sound Level (Reference Value)	dBA	60		62	62
Safety Devices			High Pressure Switch, Fan Driver Overload Protector, Overcurrent Relay, Inverter Overload Protector	High Pressure Switch, Fan Driver Overload Protector, Overcurrent Relay, Inverter Overload Protector	High Pressure Switch, Fan Driver Overload Protector, Overcurrent Relay, Inverter Overload Protector
Defrost Method			Deicer	Deicer	Deicer
Capacity Control		%	10~100	9~100	8~100
Refrigerant	Refrigerant Name		R-410A	R-410A	R-410A
	Charge	Lbs (kg)	16.5+16.5 (7.5 + 7.5)	16.5+21.4 (7.5 + 9.7)	16.5 + 22.1 (7.5 + 10)
	Control	Electronic Expansion Valve		Electronic Expansion Valve	Electronic Expansion Valve
Standard Accessories			Installation Manual, Operation Manual, Connection Pipes, Clamps	Installation Manual, Operation Manual, Connection Pipes, Clamps	Installation Manual, Operation Manual, Connection Pipes, Clamps
Drawing No.			C: 4D070909	C: 4D070910	C: 4D070911

Notes:

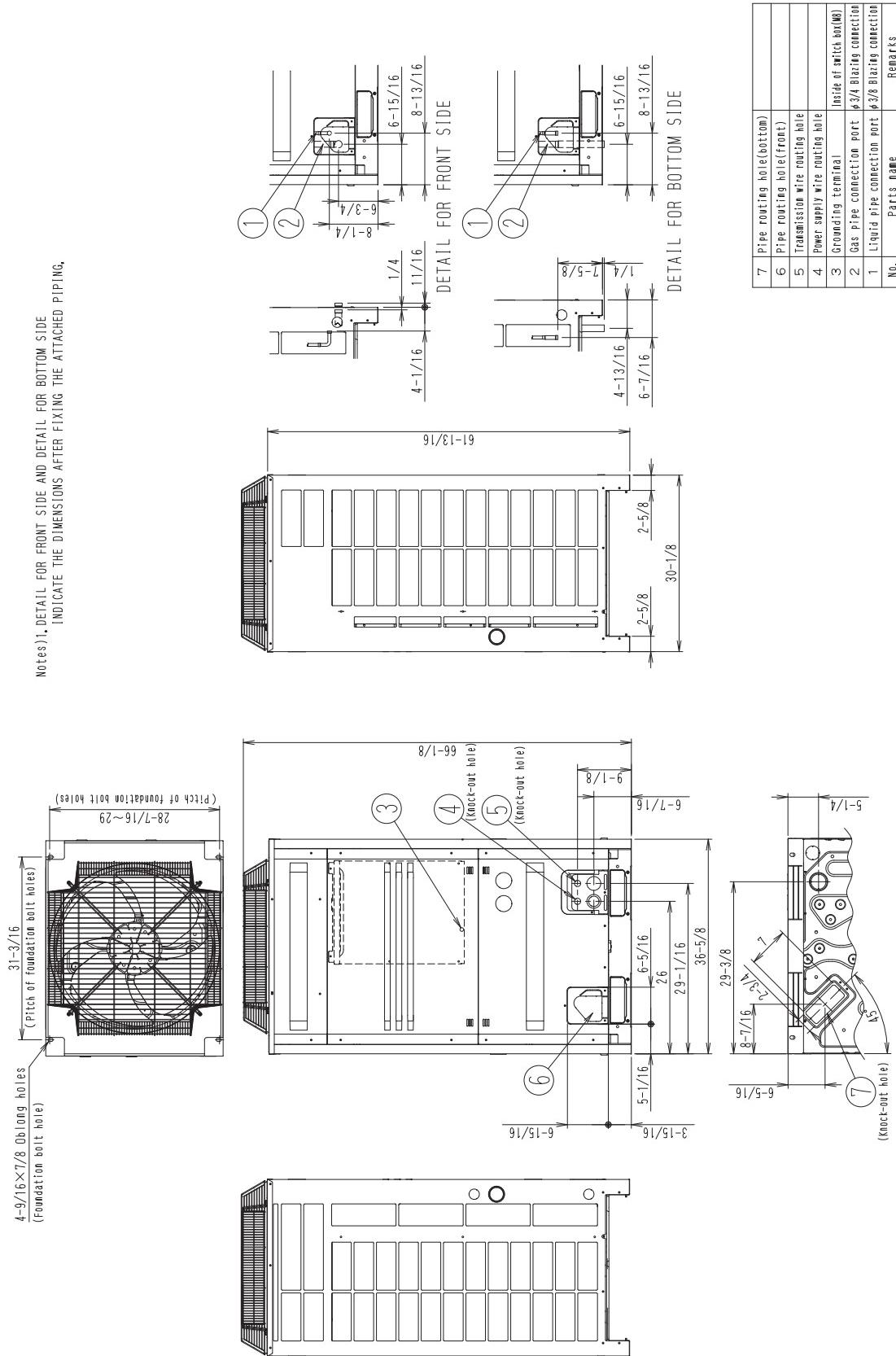
★1 Indoor temp. : 80°FDB(27°CDB), 67°FWB(19.4°CWB) / outdoor temp. : 95°FDB (35°CDB) / Equivalent piping length : 25ft (7.5 m), level difference : 0 ft.

★2 Indoor temp. : 70°FDB(21°CDB) / outdoor temp. : 47°FDB, 43°FWB (8.3° CDB, 6° CWB) / Equivalent piping length : 25ft (7.5 m), difference : 0 ft.

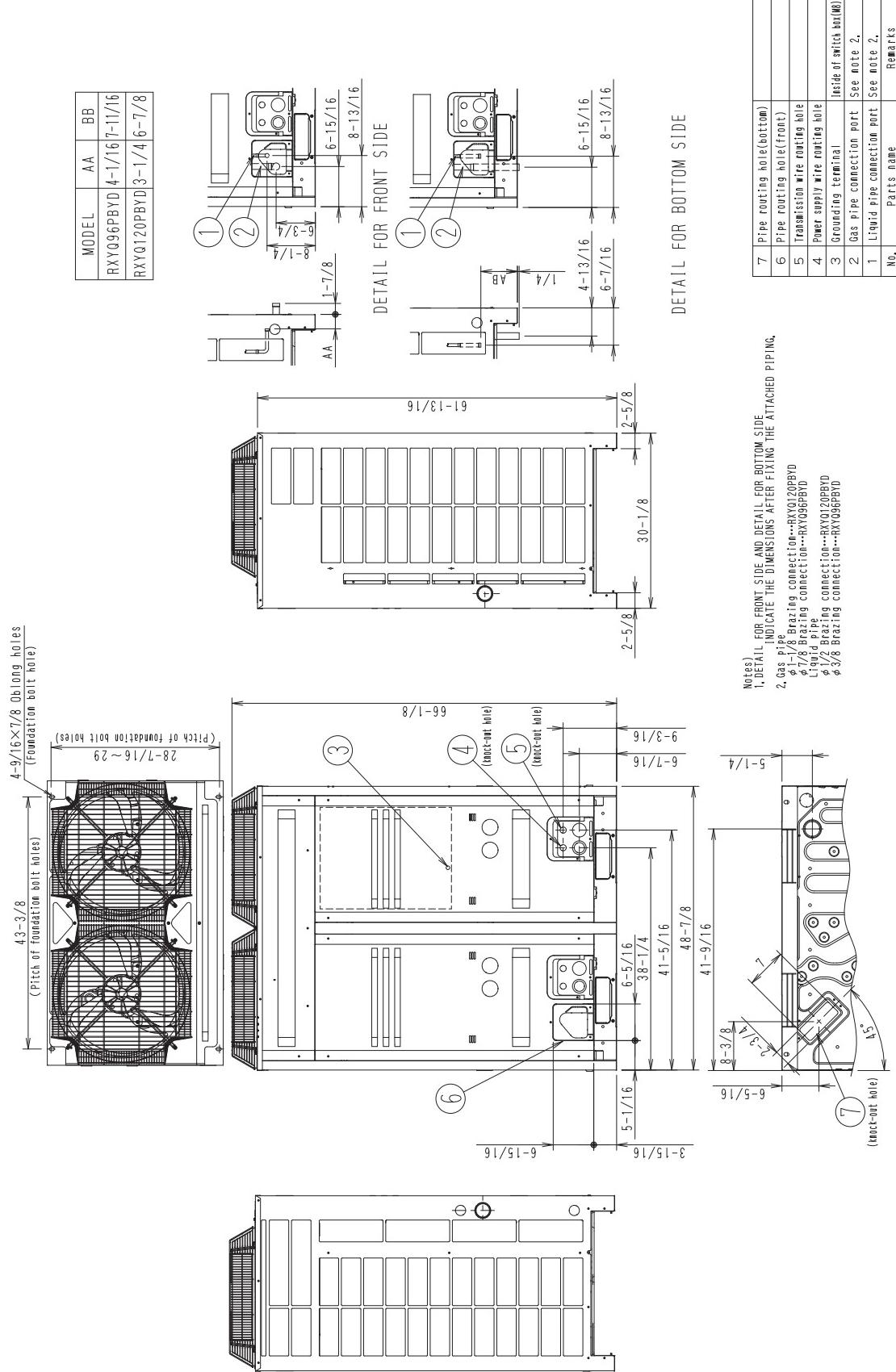
★3 Anechoic chamber conversion value, measure under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

2. Dimensions

RXYQ72PBYD

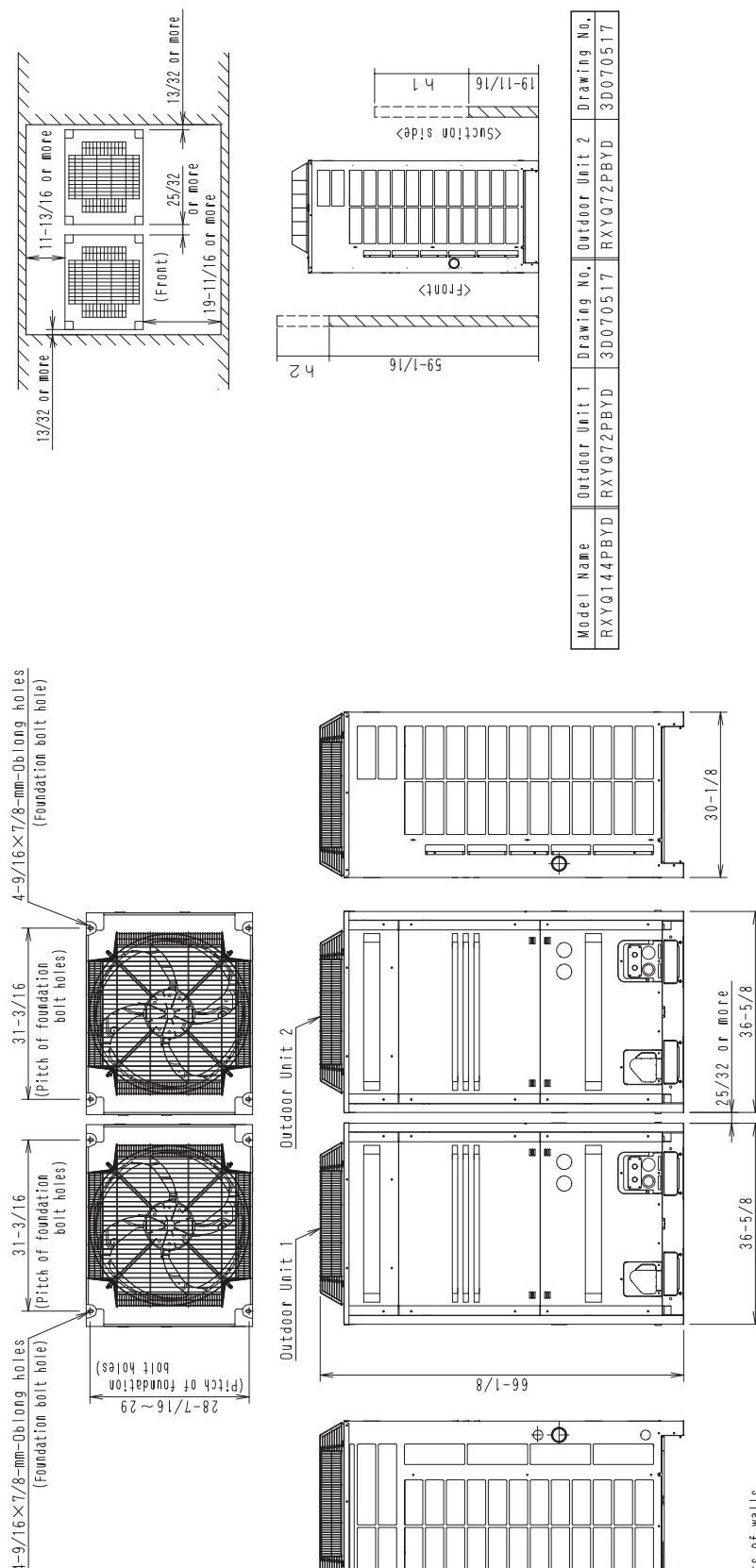


RXYQ96PBYD / RXYQ120PBYD



C: 3D070518A

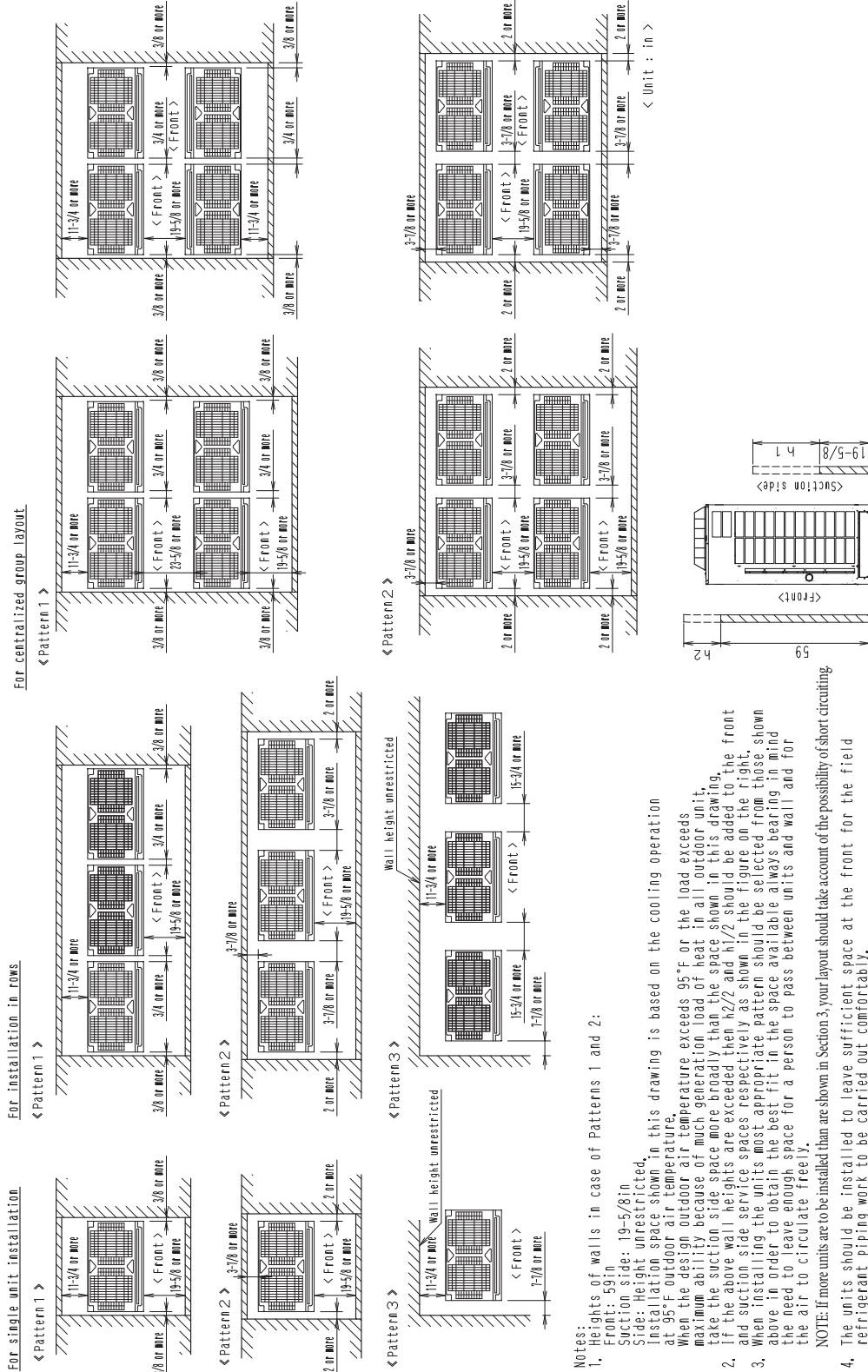
RXYQ144PBYD



C: 3D070788

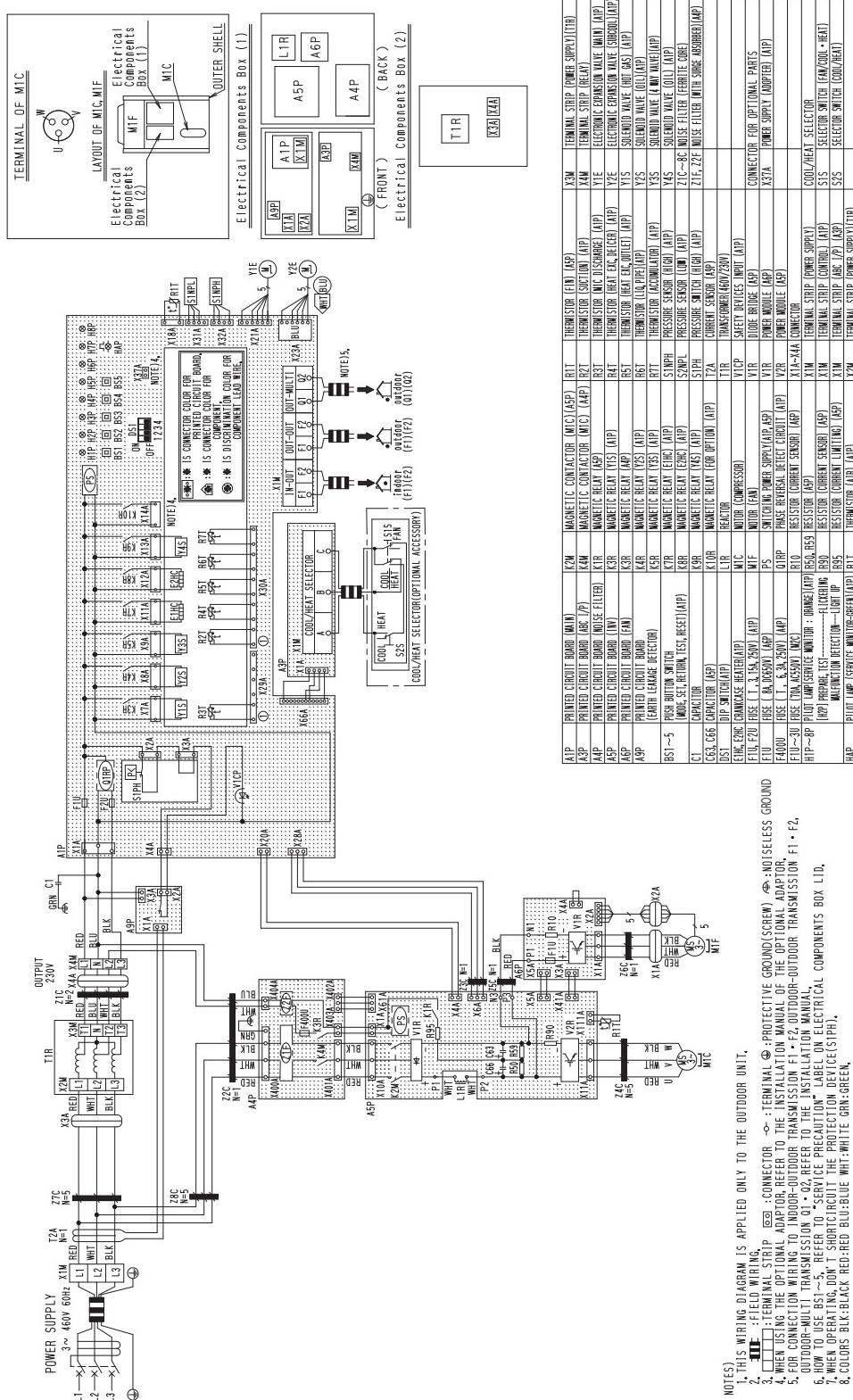
3. Service Space

RXYQ72PBYD / RXYQ96PBYD / RXYQ120PBYD / RXYQ144PBYD / RXYQ168PBYD / RXYQ192PBYD / RXYQ216PBYD / RXYQ240PBYD / RXYQ264PBYD / RXYQ288PBYD / RXYQ312PBYD / RXYQ336PBYD / RXYQ360PBYD



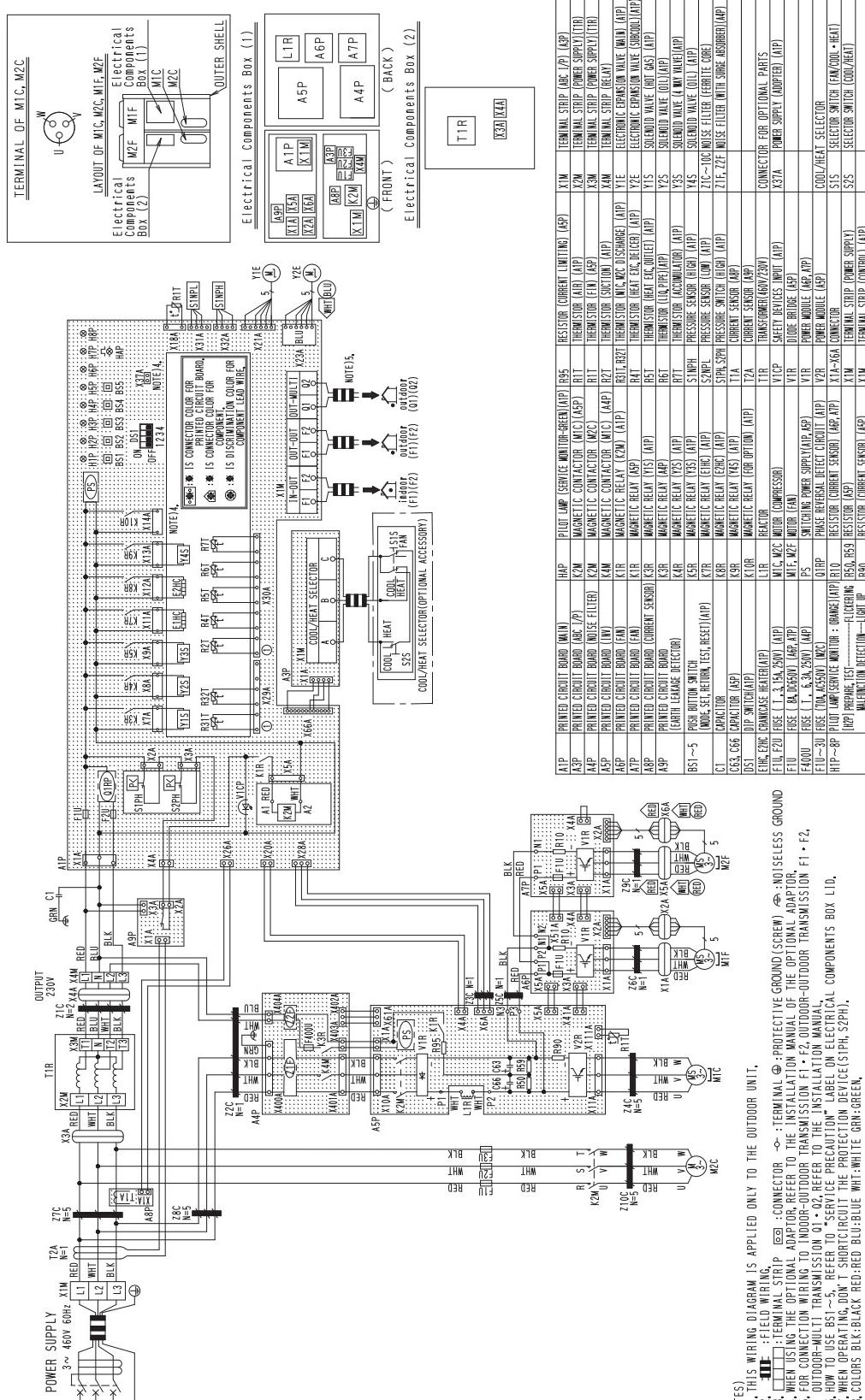
5. Wiring Diagrams

RXYQ72PBYD



RXYQ-PBYD Heat Pump (460V)

RXYQ96PBYD / RXYQ120PBYD



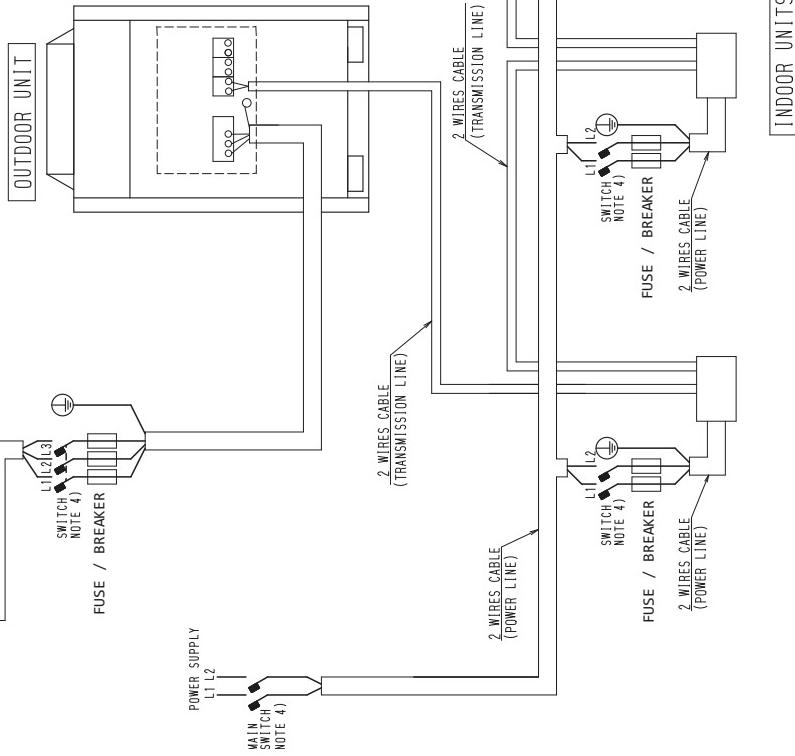
NOT 1-28698 678

6. Field Wiring

RXYQ72PBYD / RXYQ96PBYD / RXYQ120PBYD

Notes 1) All wiring, components and materials to be procured on the site must comply with the applicable local and national codes.
 2) Use copper conductors only.
 3) As for details, see wiring diagram.
 4) Field wiring diagram is to be used as a guideline only.
 Wiring should comply with applicable local and national codes.

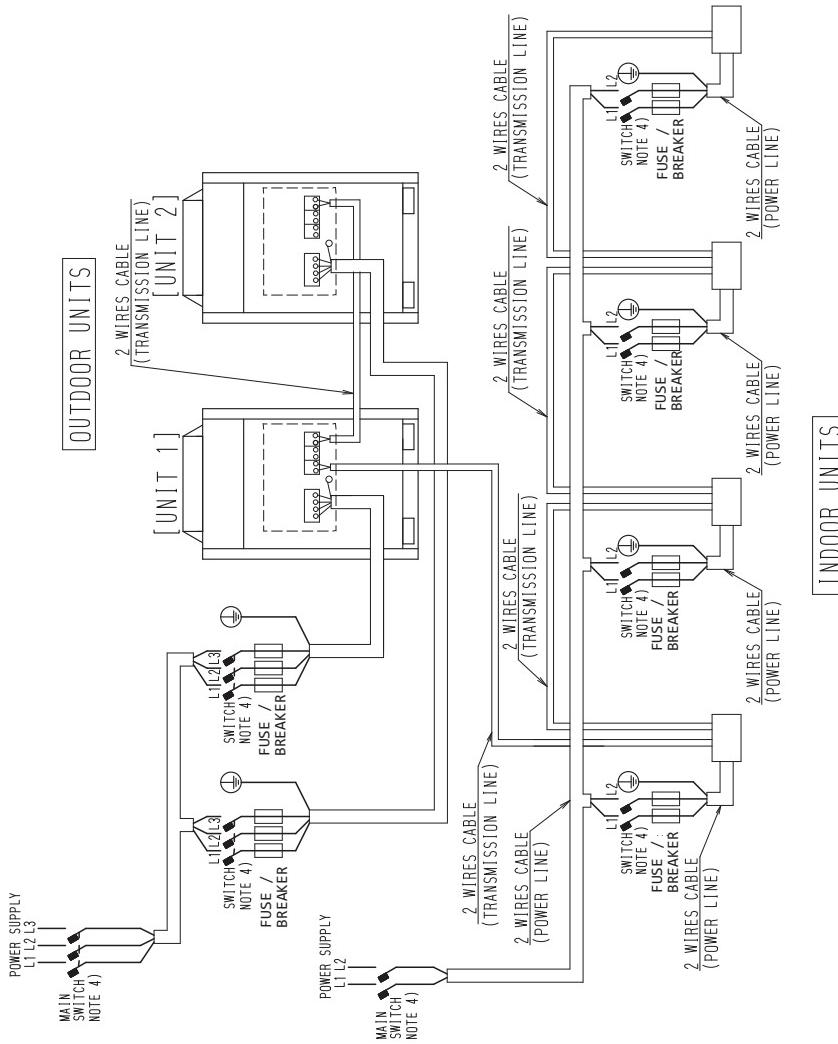
- 5) Unit shall be grounded in compliance with the applicable local and national codes.
 - 6) Wiring shown are general points-of-connection guides only and are not intended for or to include all details for a specific installation.
 - 7) Be sure to install the switch and the breaker/fuse to the power line of each piece of equipment.
 - 8) Install the main switch that can interrupt all the power sources in an integrated manner because this system consists of the equipment utilizing multiple power sources.
 - 9) If there exists the possibility of reversed phase, lost phase, momentary blackout or the power goes on and off while the product is operating, attach a reversed phase protection circuit locally.
- Running the product in reversed phase may break the compressor and other parts.



RXYQ144PBYD / RXYQ168PBYD / RXYQ192PBYD / RXYQ216PBYD / RXYQ240PBYD

- Notes 1) All wiring, components and materials to be procured on the site must comply with the applicable local and national codes.
 2) Use copper conductors only.
 3) As for details, see wiring diagram.
 4) Field wiring diagram is to be used as a guideline only.
 Wiring should comply with applicable local and national codes.

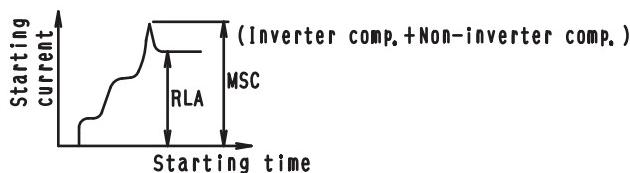
- 5) Unit shall be grounded in compliance with the applicable local and national codes.
 6) Wiring shown are general points-of-connection guides only and are not intended for or to include all details for a specific installation.
 7) Be sure to install the switch and the breaker/fuse to the power line of each piece of equipment.
 8) Install the main switch that can interrupt all the power sources in an integrated manner because this system consists of the equipment utilizing multiple power sources,
 9) If there exists the possibility of reversed phase, lost phase, momentary blackout or the power goes on and off while the product is operating, attach a reversed phase protection circuit locally.
 Running the product in reversed phase may break the compressor and other parts.



7. Electric Characteristics

Model Name	Units				Power supply		Comp.		OFM	
	Hz	Volts	Min.	Max.	MCA	MOP	MSC	RLA	KW	FLA
RXYQ72PBYD	60	460	416	508	16	20	--	7.1	0.75	0.6
RXYQ96PBYD	60	460	416	508	21	25	65	3.9 + 8.4	0.35 x 2	0.5 x 2
RXYQ120PBYD	60	460	416	508	21	25	65	5.4 + 8.4	0.35 x 2	0.5 x 2

The relationship between the starting time and the starting current.



NOTES:

1. RLA is based on the following conditions:
Indoor temp: 80° FDB / 67° FWB
Outdoor temp: 95° FDB
2. MSC means the maximum current during the starting of the compressor.
3. Voltage range:
Units are suitable for use on electrical systems where voltage supplied to unit terminal is not below or above listed range limits.
4. Maximum allowable voltage variation between phases is 2%.
5. Select wire size based on the value of MCA.
6. MOP is used to select the fuse, circuit breaker, or the ground fault circuit interrupter (ground leakage circuit breaker).

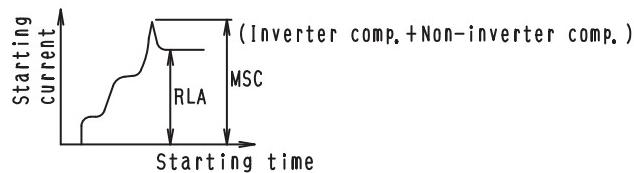
SYMBOLS:

- MCA: Minimum Circuit Amps. (A)
- MOP: Maximum Overcurrent Protective Device (A) (See Note 6)
- MSC: Maximum current when starting the compressor. (A)
- RLA: Rate Load Amps (A)
- OFM: Outdoor Fan Motor (A)
- FLA: Full Load Amps (A)
- KW: Fan Motor Rated Output

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Combination Unit	Model Name	Independent Unit	Units				Power supply		Comp.		OFM	
			Hz	Volts	Min.	Max.	MCA	MOP	MSC	RLA	KW	FLA
RXYQ144PBYD	RXYQ72PBYD	RXYQ72PBYD	60	460	416	508	16 + 16	20+20	--	7.1 + 7.1	0.75+ 0.75	0.6+0.6
RXYQ168PBYD	RXYQ72PBYD	RXYQ96PBYD	60	460	416	508	16 + 21	20+25	69	7.1 +3.9 + 8.4	0.75 +(0.35x2)	0.6+(0.5x2)
RXYQ192PBYD	RXYQ72PBYD	RXYQ120PBYD	60	460	416	508	16 + 21	20+25	69	7.1 + 5.4 + 8.4	0.75+(0.35x2)	0.6+(0.5x2)
RXYQ216PBYD	RXYQ96PBYD	RXYQ120PBYD	60	460	416	508	21 + 21	25+25	77	3.9 + 8.4+ 5.4 +8.4	(0.35x2) +(0.35x2)	(0.5x2) +(0.5x2)
RXYQ240PBYD	RXYQ120PBYD	RXYQ120PBYD	60	460	416	508	21 + 21	25+25	78	5.4+ 8.4+ 5.4 +8.4	(0.35x2) +(0.35x2)	(0.5x2) +(0.5x2)

The relationship between the starting time and the starting current.



NOTES:

1. RLA is based on the following conditions:
Indoor temp: 80° FDB / 67° FWB
Outdoor temp: 95° FDB
2. MSC means the maximum current during the starting of the compressor.
3. Voltage range:
Units are suitable for use on electrical systems where voltage supplied to unit terminal is not below or above listed range limits.
4. Maximum allowable voltage variation between phases is 2%.
5. Select wire size based on the value of MCA.
6. MOP is used to select the fuse, circuit breaker, or the ground fault circuit interrupter (ground leakage circuit breaker).

SYMBOLS:

- MCA: Minimum Circuit Amps. (A) n (A)
 MOP: Maximum Overcurrent Protective Device (A) (See Note 6)
 MSC: Maximum current when starting the compressor. (A)
 RLA: Rate Load Amps (A)
 OFM: Outdoor Fan Motor (A)
 FLA: Full Load Amps (A)
 KW: Fan Motor Rated Output

8. Capacity Tables (Reference Data)

8.1 Cooling Capacity (RXYQ-PBYD)

These tables are based on projection. Actual results may vary according to conditions of use.

RXYQ72PBYD

		Indoor air temp. °FWB										Indoor air temp. °FWB															
Combination	Outdoor air temp.	57					61					64					67					70					
		TC	PI	MBH	kW	TC	PI	MBH	kW	TC	PI	MBH	kW	TC	PI	MBH	kW	TC	PI	MBH	kW	TC	PI	MBH	kW		
130	%	**FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW											
	23	60.7	1.79	73.9	2.23	83.7	2.58	93.6	2.94	101	3.18	103	3.11	104	3.02	106	3.18	110	4.49	113	5.80	116	7.16	119	8.52	121	9.87
	30	60.7	1.85	73.9	2.01	83.7	2.67	93.6	3.03	90.6	3.15	100	3.08	102	2.99	106	3.26	110	4.54	113	5.89	116	7.23	119	8.59	121	9.84
	40	60.7	1.84	73.9	2.42	83.7	2.80	93.6	3.18	95.8	3.31	97.0	3.04	98.9	2.94	100	3.21	103	4.59	107	5.93	110	7.29	113	8.63	115	9.88
	50	60.7	2.03	73.9	2.55	83.7	2.94	90.7	3.16	92.5	3.06	93.8	2.99	95.6	2.88	94	3.19	97	4.63	100	5.97	103	7.34	106	8.70	108	9.85
	54	60.7	2.08	73.9	2.60	83.7	3.01	89.4	3.14	91.2	3.04	92.5	2.97	94.3	2.91	93	3.16	96	4.67	99	5.99	102	7.41	105	8.75	107	9.80
	58	60.7	2.12	73.9	2.65	83.7	3.04	88.1	3.13	89.9	3.06	91.2	3.07	93.0	3.09	92	3.19	95	4.71	98	5.99	101	7.46	104	8.79	106	9.83
	62	60.7	2.17	73.9	2.71	83.7	3.14	86.8	3.21	88.6	3.24	89.9	3.25	91.7	3.28	94	3.30	97	4.76	100	5.99	103	7.51	106	8.84	108	9.87
	66	60.7	2.21	73.9	2.80	83.6	3.36	85.5	3.39	87.3	3.42	88.6	3.43	90.4	3.46	93	3.40	96	4.80	99	5.99	102	7.56	105	8.88	107	9.90
	70	60.7	2.29	73.9	3.03	82.3	3.54	84.2	3.57	86.0	3.60	87.2	3.62	89.1	3.65	92	3.59	95	4.84	98	5.99	101	7.61	104	8.92	106	9.93
	72	60.7	2.37	73.9	3.15	81.7	3.63	83.5	3.66	85.4	3.69	86.6	3.71	88.4	3.74	93	3.62	96	4.88	99	5.99	102	7.66	105	8.96	107	9.95
	75	60.7	2.51	73.9	3.33	80.7	3.76	82.5	3.80	84.4	3.83	85.6	3.85	87.5	3.88	94	3.71	97	4.92	100	5.99	103	7.71	106	8.99	108	9.98
	79	60.7	2.70	73.9	3.59	79.4	3.94	81.2	3.98	83.1	4.01	84.3	4.03	86.2	4.07	95	3.81	98	4.96	101	5.99	104	7.76	107	9.02	109	9.99
	83	60.7	2.91	73.9	3.87	78.1	4.12	79.9	4.16	81.8	4.20	83.0	4.22	84.9	4.26	96	3.89	99	4.99	102	5.99	105	7.81	108	9.05	110	9.99
	87	60.7	3.12	73.9	4.16	76.8	4.31	78.6	4.34	80.5	4.38	81.7	4.41	83.6	4.45	97	3.96	99	5.02	102	5.99	105	7.85	108	9.08	111	9.99
	91	60.7	3.35	73.7	4.45	75.5	4.49	77.3	4.53	79.2	4.57	80.4	4.60	81.1	4.61	98	4.01	100	5.05	103	5.99	106	7.89	109	9.12	112	9.99
	93	60.7	3.47	73.0	4.54	74.8	4.58	76.7	4.62	78.5	4.66	79.5	4.68	79.5	4.69	99	4.05	101	5.07	104	5.99	107	7.93	110	9.14	113	9.99
	95	60.7	3.59	72.4	4.63	74.2	4.67	76.0	4.71	77.9	4.76	78.0	4.76	78.0	4.76	100	4.07	102	5.09	105	5.99	108	7.97	111	9.16	114	9.99
	99	60.7	3.85	71.1	4.81	72.9	4.86	74.7	4.90	74.9	4.90	74.9	4.90	74.9	4.91	101	4.11	103	5.11	106	5.99	109	7.99	112	9.18	115	9.99
	103	60.7	4.12	69.7	4.99	71.6	5.04	71.8	5.05	71.8	5.05	71.8	5.05	71.8	5.05	102	4.15	104	5.13	107	5.99	110	8.03	113	9.22	116	9.99
	106	60.7	4.34	68.8	5.13	69.5	5.15	69.5	5.15	69.5	5.15	69.5	5.15	69.5	5.15	103	4.18	105	5.16	108	5.99	111	8.06	114	9.25	117	9.99
	110	60.7	4.66	66.4	5.29	66.4	5.30	66.4	5.30	66.4	5.30	66.4	5.30	66.4	5.30	104	4.21	106	5.20	109	5.99	112	8.10	115	9.28	118	9.99
	115	60.7	5.54	62.2	5.54	62.2	5.54	62.2	5.54	62.2	5.54	62.2	5.54	62.2	5.54	105	4.25	108	5.24	111	5.99	114	8.14	117	9.32	120	9.99
	118	60.7	4.94	49.1	4.74	49.3	4.75	49.4	4.75	49.5	4.76	49.6	4.76	49.7	4.77	106	4.29	109	5.28	112	5.99	115	8.18	118	9.36	121	9.99
	122	60.7	3.95	36.7	3.67	39.8	3.68	39.9	3.69	40.1	3.69	40.1	3.70	40.3	3.70	107	4.33	110	5.32	113	5.99	116	8.22	119	9.41	122	9.99
120	23	56.1	1.64	68.2	2.04	77.3	2.35	86.4	2.68	95.5	3.01	101	3.19	103	3.11	105	3.11	107	3.19	109	3.11	111	3.11	113	3.11	115	3.11
	30	56.1	1.69	68.2	2.11	77.3	2.43	84.3	2.64	95.5	3.11	98.7	3.17	100	3.08	102	3.11	104	3.19	106	3.11	108	3.11	110	3.11	112	3.11
	40	56.1	1.77	68.2	2.21	77.3	2.55	86.4	2.90	94.3	3.18	95.4	3.21	97.1	3.03	99	3.11	101	3.19	103	3.11	105	3.11	107	3.11	109	3.11
	50	56.1	1.86	68.2	2.32	77.3	2.68	86.4	3.05	91.0	3.14	92.4	3.02	93.9	2.98	94	3.11	96	3.19	98	3.11	100	3.11	102	3.11	104	3.11
	54	56.1	1.90	68.2	2.37	77.3	2.74	86.4	3.12	89.7	3.12	90.9	3.06	92.6	2.96	93	3.11	95	3.19	97	3.11	99	3.11	101	3.11	103	3.11
	58	56.1	1.94	68.2	2.42	77.3	2.80	86.4	3.18	88.4	3.11	89.6	3.05	91.3	3.07	92	3.11	94	3.19	96	3.11	98	3.11	100	3.11	102	3.11
	62	56.1	1.98	68.2	2.47	77.3	2.86	85.4	3.19	87.1	3.22	88.3	3.23	90.0	3.25	91	3.11	93	3.19	95	3.11	97	3.11	99	3.11	101	3.11
	66	56.1	2.02	68.2	2.53	77.3	2.94	84.1	3.37	85.8	3.40	87.0	3.41	88.7	3.44	90	3.11	92	3.19	94	3.11	96	3.11	98	3.11	100	3.11
	70	56.1	2.07	68.2	2.69	77.3	3.24	82.8	3.55	84.5	3.58	85.7	3.59	87.4	3.62	89	3.11	91	3.19	93	3.11	95	3.11	97	3.11	99	3.11
	72	56.1	2.13	68.2	2.80	77.3	3.36	82.8	3.65	84.9	3.68	86.0	3.70	87.8	3.73	89	3.11	91	3.19	93	3.11	95	3.11	97	3.11	99	3.11
	75	56.1	2.25	68.2	2.96	77.3	3.56	81.2	3.77	82.9	3.80	84.0	3.82	85.7	3.85	87	3.11	89	3.19	91	3.11	93	3.11	95	3.11	97	3.11
	79	56.1	2.42	68.2	3.19	77.3	3.84	89.9	3.95	91.6	3.98	92.7	4.01	94.4	4.04	96	3.11	98	3.19	100	3.11	102	3.11	104	3.11	106	3.11
	83	56.1	2.60	68.2	3.43	76.9	4.10	87.6	4.13	89.3	4.17	91.4	4.19	93.1	4.22	95	3.11	97	3.19	99	3.11	101	3.11	103	3.11	105	3.11
	87	56.1	2.79	68.2	3.69	75.6	4.28	87.3	4.27	89.0	4.35	90.1	4.37	91.8	4.41	93	3.11	95	3.19	97	3.11	99	3.11	101	3.11	103	3.11
	91	56.1	2.99	68.2	3.97	74.3	4.46	86.0	4.50	87.7	4.54	89.4	4.58	91.1	4.60	92	3.11	94	3.19	96	3.11	98	3.11	100	3.11	102	3.11
	95	56.1	3.09	68.2	4.11	73.6	4.55	85.3	4.59	87.0	4.63	88.7	4.67	90.4	4.71	9											

RXYQ96PBYD

Combination	Outdoor air temp.	Indoor air temp. °FWB												Indoor air temp. °FWB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
		57			61			64			67			70			72			75			57			61			64			67			70			72			75																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
		TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
130	23	81.0	2.55	98.5	2.55	112	2.55	125	2.55	135	2.55	137	2.55	139	2.55	140	2.55	142	2.55	144	2.55	146	2.55	148	2.55	150	2.55	152	2.55	154	2.55	156	2.55	158	2.55																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	30	81.0	3.05	98.5	3.05	112	3.05	125	3.05	132	3.05	134	3.05	136	3.05	138	3.05	140	3.05	142	3.05	144	3.05	146	3.05	148	3.05	150	3.05	152	3.05	154	3.05	156	3.05	158	3.05																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
	40	81.0	3.75	98.5	3.75	112	3.75	125	3.75	128	3.75	129	3.75	132	3.75	134	3.75	136	3.75	138	3.75	140	3.75	142	3.75	144	3.75	146	3.75	148	3.75	150	3.75	152	3.75	154	3.75	156	3.75	158	3.75																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	50	81.0	4.43	98.5	4.43	112	4.43	121	4.43	123	4.43	125	4.43	127	4.43	129	4.43	131	4.43	133	4.43	135	4.43	137	4.43	139	4.43	141	4.43	143	4.43	145	4.43	147	4.43	149	4.43	151	4.43	153	4.43	155	4.43	157	4.43	159	4.43	161	4.43	163	4.43	165	4.43	167	4.43	169	4.43	171	4.43	173	4.43	175	4.43	177	4.43	179	4.43	181	4.43	183	4.43	185	4.43	187	4.43	189	4.43	191	4.43	193	4.43	195	4.43	197	4.43	199	4.43	201	4.43	203	4.43	205	4.43	207	4.43	209	4.43	211	4.43	213	4.43	215	4.43	217	4.43	219	4.43	221	4.43	223	4.43	225	4.43	227	4.43	229	4.43	231	4.43	233	4.43	235	4.43	237	4.43	239	4.43	241	4.43	243	4.43	245	4.43	247	4.43	249	4.43	251	4.43	253	4.43	255	4.43	257	4.43	259	4.43	261	4.43	263	4.43	265	4.43	267	4.43	269	4.43	271	4.43	273	4.43	275	4.43	277	4.43	279	4.43	281	4.43	283	4.43	285	4.43	287	4.43	289	4.43	291	4.43	293	4.43	295	4.43	297	4.43	299	4.43	301	4.43	303	4.43	305	4.43	307	4.43	309	4.43	311	4.43	313	4.43	315	4.43	317	4.43	319	4.43	321	4.43	323	4.43	325	4.43	327	4.43	329	4.43	331	4.43	333	4.43	335	4.43	337	4.43	339	4.43	341	4.43	343	4.43	345	4.43	347	4.43	349	4.43	351	4.43	353	4.43	355	4.43	357	4.43	359	4.43	361	4.43	363	4.43	365	4.43	367	4.43	369	4.43	371	4.43	373	4.43	375	4.43	377	4.43	379	4.43	381	4.43	383	4.43	385	4.43	387	4.43	389	4.43	391	4.43	393	4.43	395	4.43	397	4.43	399	4.43	401	4.43	403	4.43	405	4.43	407	4.43	409	4.43	411	4.43	413	4.43	415	4.43	417	4.43	419	4.43	421	4.43	423	4.43	425	4.43	427	4.43	429	4.43	431	4.43	433	4.43	435	4.43	437	4.43	439	4.43	441	4.43	443	4.43	445	4.43	447	4.43	449	4.43	451	4.43	453	4.43	455	4.43	457	4.43	459	4.43	461	4.43	463	4.43	465	4.43	467	4.43	469	4.43	471	4.43	473	4.43	475	4.43	477	4.43	479	4.43	481	4.43	483	4.43	485	4.43	487	4.43	489	4.43	491	4.43	493	4.43	495	4.43	497	4.43	499	4.43	501	4.43	503	4.43	505	4.43	507	4.43	509	4.43	511	4.43	513	4.43	515	4.43	517	4.43	519	4.43	521	4.43	523	4.43	525	4.43	527	4.43	529	4.43	531	4.43	533	4.43	535	4.43	537	4.43	539	4.43	541	4.43	543	4.43	545	4.43	547	4.43	549	4.43	551	4.43	553	4.43	555	4.43	557	4.43	559	4.43	561	4.43	563	4.43	565	4.43	567	4.43	569	4.43	571	4.43	573	4.43	575	4.43	577	4.43	579	4.43	581	4.43	583	4.43	585	4.43	587	4.43	589	4.43	591	4.43	593	4.43	595	4.43	597	4.43	599	4.43	601	4.43	603	4.43	605	4.43	607	4.43	609	4.43	611	4.43	613	4.43	615	4.43	617	4.43	619	4.43	621	4.43	623	4.43	625	4.43	627	4.43	629	4.43	631	4.43	633	4.43	635	4.43	637	4.43	639	4.43	641	4.43	643	4.43	645	4.43	647	4.43	649	4.43	651	4.43	653	4.43	655	4.43	657	4.43	659	4.43	661	4.43	663	4.43	665	4.43	667	4.43	669	4.43	671	4.43	673	4.43	675	4.43	677	4.43	679	4.43	681	4.43	683	4.43	685	4.43	687	4.43	689	4.43	691	4.43	693	4.43	695	4.43	697	4.43	699	4.43	701	4.43	703	4.43	705	4.43	707	4.43	709	4.43	711	4.43	713	4.43	715	4.43	717	4.43	719	4.43	721	4.43	723	4.43	725	4.43	727	4.43	729	4.43	731	4.43	733	4.43	735	4.43	737	4.43	739	4.43	741	4.43	743	4.43	745	4.43	747	4.43	749	4.43	751	4.43	753	4.43	755	4.43	757	4.43	759	4.43	761	4.43	763	4.43	765	4.43	767	4.43	769	4.43	771	4.43	773	4.43	775	4.43	777	4.43	779	4.43	781	4.43	783	4.43	785	4.43	787	4.43	789	4.43	791	4.43	793	4.43	795	4.43	797	4.43	799	4.43	801	4.43	803	4.43	805	4.43	807	4.43	809	4.43	811	4.43	813	4.43	815	4.43	817	4.43	819	4.43	821	4.43	823	4.43	825	4.43	827	4.43	829	4.43	831	4.43	833	4.43	835	4.43	837	4.43	839	4.43	841	4.43	843	4.43	845	4.43	847	4.43	849	4.43	851	4.43	853	4.43	855	4.43	857	4.43	859	4.43	861	4.43	863	4.43	865	4.43	867	4.43	869	4.43	871	4.43	873	4.43	875	4.43	877	4.43	879	4.43	881	4.43	883	4.43	885	4.43	887	4.43	889	4.43	891	4.43	893	4.43	895	4.43	897	4.43	899	4.43	901	4.43	903	4.43	905	4.43	907	4.43	909	4.43	911	4.43	913	4.43	915	4.43	917	4.43	919	4.43	921	4.43	923	4.43	925	4.43	927	4.43	929	4.43	931	4.43	933	4.43	935	4.43	937	4.43	939	4.43	941	4.43	943	4.43	945	4.43	947	4.43	949	4.43	951	4.43	953	4.43	955	4.43	957	4.43	959	4.43	961	4.43	963	4.43	965	4.43	967	4.43	969	4.43	971	4.43	973	4.43	975	4.43	977	4.43	979	4.43	981	4.43	983	4.43	985	4.43	987	4.43	989	4.43	991	4.43	993	4.43	995	4.43	997	4.43	999	4.43	1001	4.43	1003	4.43	1005	4.43	1007	4.43	1009	4.43	1011	4.43	1013	4.43	1015	4.43	1017	4.43	1019	4.43	1021	4.43	1023	4.43	1025	4.43	1027	4.43	1029	4.43	1031	4.43	1033	4.43	1035	4.43	1037	4.43	1039	4.43	1041	4.43	1043	4.43	1045	4.43	1047	4.43	1049	4.43	1051	4.43	1053	4.43	1055	4.43	1057	4.43	1059	4.43	1061	4.43	1063	4.43	1065	4.43	1067	4.43	1069	4.43	1071	4.43	1073	4.43	1075	4.43	1077	4.43	1079	4.43	1081	4.43	1083	4.43	1085	4.43	1087	4.43	1089	4.43	1091	4.43	1093	4.43	1095	4.43

RXYQ120PBYD

Combination	Outdoor air temp.	Indoor air temp. °FWB												Indoor air temp. °FWB																													
		57			61			64			67			70			72			75			57			61			64			67			70			72			75		
		TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW										
130	23	101	3.52	123	4.39	140	5.07	156	5.77	169	6.24	171	6.12	174	5.93	23	70.1	2.40	85.2	2.93	96.6	3.35	108	3.77	119	4.24	127	4.55	138	5.02													
	30	101	3.64	123	4.54	140	5.24	156	5.96	165	6.19	167	6.06	170	5.87	30	70.1	2.47	85.2	3.02	96.6	3.45	108	3.91	119	4.38	127	4.56	138	5.19													
	40	101	3.81	123	4.76	140	5.50	156	6.26	160	6.10	162	5.97	165	5.77	40	70.1	2.57	85.2	3.16	96.6	3.62	108	4.10	119	4.59	127	4.93	138	5.44													
	50	101	4.00	123	5.00	140	5.78	151	6.21	154	6.01	156	5.87	159	5.66	50	70.1	2.69	85.2	3.31	96.6	3.80	108	4.30	119	4.83	127	5.18	138	5.73													
	54	101	4.08	123	5.11	140	5.81	149	6.18	152	5.97	154	5.83	157	5.72	54	70.1	2.74	85.2	3.37	96.6	3.87	108	4.39	119	4.93	127	5.29	138	5.85													
	58	101	4.17	123	5.22	140	6.03	147	6.14	150	6.00	152	6.04	155	6.08	58	70.1	2.79	85.2	3.44	96.6	3.95	108	4.49	119	5.03	127	5.41	138	5.97													
	62	101	4.26	123	5.33	140	6.16	145	6.31	149	6.36	150	6.39	153	6.44	62	70.1	2.85	85.2	3.51	96.6	4.04	108	4.58	119	5.14	127	5.52	138	6.10													
	66	101	4.35	123	5.50	139	6.61	142	6.66	146	6.72	149	6.75	151	6.80	66	70.1	2.90	85.2	3.58	96.6	4.12	108	4.68	119	5.26	127	5.75	138	6.54													
	70	101	4.49	123	5.95	137	6.96	140	7.02	143	7.07	145	7.11	148	7.14	70	70.1	2.96	85.2	3.66	96.6	4.22	108	4.92	119	5.68	127	6.22	137	6.96													
	72	101	4.67	123	6.18	136	7.14	139	7.19	142	7.25	144	7.29	147	7.35	72	70.1	2.99	85.2	3.70	96.6	4.37	108	5.11	119	5.91	127	6.47	136	7.13													
	75	101	4.93	123	6.55	135	7.40	138	7.46	141	7.52	143	7.56	146	7.63	75	70.1	3.05	85.2	3.91	96.6	4.63	108	5.41	119	6.25	127	6.85	134	7.39													
	79	101	5.31	123	7.06	132	7.75	136	7.82	138	7.88	141	7.93	144	7.99	79	70.1	3.27	85.2	4.20	96.6	4.98	108	5.82	119	6.74	127	7.39	132	7.75													
	83	101	5.71	123	7.60	130	8.11	133	8.18	136	8.25	139	8.29	141	8.36	83	70.1	3.50	85.2	4.51	96.6	5.35	108	6.26	119	7.26	127	7.96	130	8.10													
	87	101	6.13	123	8.18	128	8.46	131	8.54	134	8.61	136	8.66	139	8.74	87	70.1	3.74	85.2	4.83	96.6	5.74	108	6.73	119	8.30	128	8.46	132	8.84													
	91	101	6.58	123	8.74	126	8.82	129	8.90	132	8.98	134	9.03	137	9.10	91	70.1	4.00	85.2	5.18	96.6	6.16	108	7.23	119	8.39	128	8.76	126	8.82													
	93	101	6.82	123	8.92	125	9.00	128	9.08	131	9.16	133	9.22	134	9.25	93	70.1	4.14	85.2	5.36	96.6	6.38	108	7.49	119	8.69	122	8.94	125	8.99													
	95	101	7.06	121	9.10	124	9.18	127	9.27	130	9.35	131	9.39	133	9.41	95	70.1	4.28	85.2	5.54	96.6	6.60	108	7.76	119	9.01	121	9.17	123	9.17													
	99	101	7.57	118	9.45	121	9.54	125	9.63	126	9.68	126	9.68	126	9.68	99	70.1	4.57	85.2	5.93	96.6	7.07	108	8.32	118	9.43	119	9.47	121	9.54													
	103	101	8.11	116	9.81	119	9.91	121	9.95	121	9.95	121	9.95	121	9.95	103	70.1	4.87	85.2	6.34	96.6	7.58	108	8.92	116	9.73	117	9.83	119	9.90													
	106	101	8.65	115	10.2	117	10.3	117	10.3	117	10.3	117	10.3	117	10.3	106	70.1	5.19	85.2	6.76	96.6	8.08	108	9.53	114	10.2	115	10.2	117	10.3													
	110	101	9.45	111	10.8	111	10.8	111	10.8	111	10.8	111	10.8	111	10.8	110	70.1	5.64	85.2	7.37	96.6	8.82	108	10.4	111	11.0	111	10.8	112	10.8													
	115	101	9.60	10.8	10.2	9.8	9.64	10.9	9.66	10.9	9.68	10.9	9.70	10.9	9.72	10.9	115	70.1	6.25	85.2	8.19	96.6	10.9	109	9.72	10.9	10.9	10.9	10.9	10.9	10.9												
	118	101	9.17	83.6	9.18	83.8	9.20	84.0	9.21	84.2	9.22	84.4	9.23	84.6	9.24	118	70.1	6.65	85.2	9.18	83.8	9.20	84.0	9.21	84.2	9.22	84.4	9.23	84.6	9.24													
	122	66.6	6.95	6.68	6.97	6.70	6.98	6.72	6.99	67.4	7.00	67.6	7.01	67.8	7.02	122	66.6	6.95	66.8	6.97	67.0	6.98	67.4	6.99	67.4	7.00	67.6	7.01	67.8	7.02													
120	23	93.4	3.23	114	4.01	129	4.63	144	5.26	159	5.91	168	6.27	171	6.11	23	62.3	2.15	85.2	2.60	85.9	2.95	96.6	3.33	106	3.71	113	3.98	123	4.38													
	30	93.4	3.33	114	4.14	129	4.78	144	5.43	159	6.10	164	6.22	167	6.05	30	62.3	2.20	85.2	2.67	85.9	3.04	96.6	3.43	106	3.83	113	4.11	123	4.53													
	40	93.4	3.49	114	4.34	129	5.01	144	5.70	157	6.26	159	6.14	162	5.96	40	62.3	2.29	85.2	2.79	85.9	3.19	96.6	3.59	106	4.02	113	4.31	123	4.75													
	50	93.4	3.66	114	4.56	129	5.27	144	6.00	152	6.18	154	6.05	156	5.86	50	62.3	2.39	85.2	2.92	85.9	3.33	96.6	3.70	106	4.22	113	4.53	123	5.00													
	54	93.4	3.73	114	4.66	129	5.38	144	6.12	150	6.14	151	6.01	154	5.81	54	62.3	2.43	85.2	2.97	85.9	3.40	96.6	3.84	106	4.31	113	4.62	123	5.10													
	62	93.4	3.89	114	4.86	129	5.62	142	6.27	145	6.32	147	6.35	150	6.40	62	62.3	2.52	85.2	3.05	85.9	3.47	96.6	4.01	106	4.49	113	4.82	123	5.21													
	66	93.4	3.97	114	4.97	129	5.88	140	6.62	143	6.67	145	6.71	148	6.75	66	62.3	2.57	85.2	3.15	85.9	3.61	96.6	4.09	106	4.59	113	4.93	123	5.49													
	70	93.4	4.06	114	5.29	129	6.36	138	6.98	141	7.03	143	7.06	146	7.11	70	62.3	2.62	85.2	3.22	85.9	3.73	96.6	4.18	106	4.80	113	5.24	123	5.93													
	72	93.4	4.18	114	5.50	129	6.61	137	7.15	140	7.21	142	7.24	145	7.30	72	62.3	2.65	85.2	3.25	85.9	3.73	96.6	4.30	106	4.98	113	5.44	123	6.17													
	75	93.4	4.42	114	5.82	129	7.00	135	7.42	138	7.47	140	7.51	143	7.57	75	62.3	2.75	85.2	3.36	85.9	3.96	96.6	4.58	106	5.27	113	5.76	123	6.53													
	79	93.4	4.72	104	5.53	131	7.72	134	7.78	135	7.82	138	7.87	141	7.93	79	62.3	2.83	85.2	3.50	85.9	4.24	96.6	4.93	106	5.61	123	7.23	7														

RXYQ144PBYD

Combination	Outdoor air temp.	Indoor air temp. °FWB												Indoor air temp. °FWB																													
		57			61			64			67			70			72			75			57			61			64			67			70			72			75		
		TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW												
130	23	121	3.59	148	4.47	167	5.18	187	5.87	203	6.35	205	6.23	209	6.04	23	84.1	2.44	102	2.98	116	3.41	130	3.85	143	4.31	152	4.63	166	5.11													
	30	121	3.70	148	4.62	167	5.33	187	6.07	198	6.29	201	6.17	204	5.97	30	84.1	2.51	102	3.07	116	3.51	130	3.98	143	4.45	152	4.78	166	5.28													
	40	121	3.88	148	4.84	167	5.60	187	6.37	192	6.21	194	6.08	198	5.87	40	84.1	2.62	102	3.21	116	3.68	130	4.17	143	4.67	152	5.02	166	5.54													
	50	121	4.07	148	5.09	167	5.89	181	6.32	185	6.12	188	5.97	191	5.76	50	84.1	2.74	102	3.36	116	3.86	130	4.38	143	4.91	152	5.27	166	5.83													
	54	121	4.15	148	5.20	167	6.01	179	6.29	182	6.08	185	5.93	189	5.82	54	84.1	2.79	102	3.43	116	3.94	130	4.47	143	5.02	152	5.39	166	5.95													
	58	121	4.24	148	5.31	167	6.14	176	6.25	180	6.11	182	6.14	186	6.19	58	84.1	2.84	102	3.50	116	4.02	130	4.56	143	5.12	152	5.50	166	6.08													
	62	121	4.33	148	5.43	167	6.27	174	6.42	177	6.47	180	6.50	183	6.56	62	84.1	2.90	102	3.57	116	4.11	130	4.66	143	5.23	152	5.62	166	6.21													
	66	121	4.42	148	5.59	167	6.73	171	6.78	175	6.83	177	6.87	181	6.92	66	84.1	2.95	102	3.65	116	4.20	130	4.77	143	5.35	152	5.85	166	6.65													
	70	121	4.57	148	6.05	176	7.08	168	7.14	172	7.20	174	7.24	178	7.29	70	84.1	3.01	102	3.73	116	4.29	130	5.01	143	5.78	152	6.33	164	7.08													
	72	121	4.75	148	6.29	163	7.26	167	7.32	171	7.38	173	7.42	177	7.48	72	84.1	3.05	102	3.77	116	4.45	130	5.20	143	6.01	152	6.58	163	7.26													
	75	121	5.02	148	6.66	161	7.53	165	7.59	169	7.66	171	7.70	175	7.76	75	84.1	3.10	102	3.98	116	4.71	130	5.50	143	6.36	152	6.97	161	7.52													
	79	121	5.40	148	7.18	159	7.89	162	7.96	166	8.02	169	8.07	172	8.14	79	84.1	3.23	102	4.27	116	5.06	130	5.93	143	6.86	152	7.52	159	7.88													
	83	121	5.81	148	7.73	156	8.25	160	8.32	164	8.39	166	8.44	170	8.51	83	84.1	3.56	102	4.58	116	5.44	130	6.37	143	7.38	152	8.10	156	8.24													
	87	121	6.24	148	8.32	154	8.61	157	8.69	161	8.76	163	8.82	167	8.89	87	84.1	3.81	102	4.92	116	5.84	130	6.85	143	7.94	152	8.55	153	8.61													
	91	121	6.70	147	8.90	151	8.98	155	9.06	158	9.14	161	9.19	164	9.26	91	84.1	4.07	102	5.27	116	6.27	130	7.36	143	8.54	148	8.91	151	8.97													
	93	121	6.94	148	9.08	150	9.16	153	9.24	157	9.33	160	9.38	161	9.41	93	84.1	4.21	102	5.45	116	6.49	130	7.62	143	8.85	147	9.10	149	9.15													
	95	121	7.18	145	9.26	148	9.34	152	9.43	156	9.51	158	9.56	160	9.60	95	84.1	4.35	102	5.64	116	6.72	130	7.89	143	9.17	146	9.28	148	9.34													
	99	121	7.70	142	9.62	146	9.71	149	9.80	151	9.85	151	9.85	151	9.85	99	84.1	4.65	102	6.03	116	7.20	130	8.47	141	9.60	143	9.64	146	9.70													
	103	121	8.25	139	9.98	143	10.1	145	10.1	145	10.1	145	10.1	145	10.1	103	84.1	4.96	102	6.45	116	7.71	130	9.08	139	9.98	140	10.0	143	10.1													
	106	121	8.81	138	10.4	140	10.5	140	10.5	140	10.5	140	10.5	140	10.5	106	84.1	5.28	102	6.88	116	8.23	130	9.69	137	10.4	138	10.5	140	10.5													
	110	121	9.62	134	10.9	134	10.9	134	10.9	134	10.9	134	10.9	134	10.9	110	84.1	5.74	102	7.50	116	8.98	130	10.6	134	10.9	134	10.9	134	10.9													
	115	115	11.0	11.5	11.0	11.6	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	115	84.1	6.36	102	8.34	116	11.1	11.1	11.1	116	11.1	11.1	117	11.1	11.1													
	118	100	9.33	100	9.35	101	9.36	101	9.37	101	9.38	101	9.39	101	9.40	118	84.1	6.76	100	9.35	101	9.36	101	9.37	101	9.38	101	9.39	101	9.40													
	122	79.9	7.07	80.2	7.09	80.5	7.10	80.7	7.11	80.9	7.12	81.1	7.13	81.3	7.15	122	79.9	7.07	80.2	7.09	80.7	7.10	80.9	7.11	80.9	7.12	81.1	7.13	81.3	7.15													
110	23	112	3.29	136	4.08	155	4.71	173	5.35	191	6.01	202	6.39	205	6.21	23	74.8	2.19	9.09	2.64	103	3.00	115	3.38	127	3.78	135	4.05	148	4.46													
	30	112	3.39	146	4.21	155	4.86	171	5.33	191	6.21	197	6.33	201	6.15	30	74.8	2.24	9.09	2.72	102	3.10	115	3.49	127	3.90	135	4.18	146	4.61													
	40	112	3.55	136	4.42	155	5.10	173	5.80	189	6.37	191	6.21	194	6.06	40	74.8	2.33	9.09	2.84	103	3.24	115	3.65	127	4.09	135	4.83															
	50	112	3.72	136	4.64	155	5.37	173	6.10	182	6.28	184	6.16	188	5.96	50	74.8	2.43	9.09	2.97	103	3.39	115	3.83	127	4.29	135	5.08															
	54	112	3.80	136	4.74	155	5.48	173	6.23	179	6.25	182	6.15	185	5.92	54	74.8	2.48	9.09	3.02	103	3.46	115	3.91	127	4.38	135	5.19															
	58	112	3.87	136	4.84	155	5.60	173	6.36	177	6.21	179	6.10	183	6.14	58	74.8	2.52	9.09	3.08	103	3.53	115	3.99	127	4.47	135	5.30															
	62	112	3.96	136	4.95	155	5.72	171	6.38	174	6.43	177	6.46	180	6.51	62	74.8	2.57	9.09	3.14	103	3.60	115	4.08	127	4.57	135	5.42															
	66	112	4.04	136	5.06	155	5.98	168	6.74	172	6.79	174	6.82	177	6.87	66	74.8	2.62	9.09	3.21	103	3.68	115	4.17	127	4.67	135	5.58															
	70	112	4.13	136	5.39	155	6.47	166	7.10	169	7.15	171	7.19	175	7.24	70	74.8	2.67	9.09	3.28	103	3.76	115	4.26	127	4.78	135	6.04															
	72	112	4.25	136	5.60	155	6.73	164	7.28	168	7.33	170	7.37	173	7.42	72	74.8	2.70	9.09	3.31	103	3.80	115	4.41	127	5.07	135	6.28															
	75	112	4.50	136	5.92	155	7.13	162	7.55	166	7.60	168	7.64	171	7.75	75	74.8	2.74	9.09	3.41	103	4.01	115	4.67	127	5.37	135	6.65															
	79	112	4.84	136	6.38	155	7.61	169	8.37	173	8.43	177	8.51	180	8.67	79	74.8	2.88	9.09	3.66	103	4.31	115	5.02	127	5.78	135	7.17															

8.2 Heating Capacity (RXYQ-PBYD)

RXYQ72PBYD

Combination		Indoor air temp. °FDB										Indoor air temp. °FDB																										
		61		65		68		70		72		75		61		65		68		70		72																
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI															
%	*FDB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI															
130	-3.64	-4.0	57.8	4.82	57.0	5.16	57.4	5.42	57.3	5.59	57.2	5.76	57.0	6.02	-3.64	-4.0	56.7	6.49	56.6	6.73	56.5	6.90	56.4	7.02														
	-1.84	-2.2	59.5	4.98	59.3	5.32	59.2	5.57	59.0	5.74	58.9	5.90	58.8	6.15	-1.84	-2.2	58.5	6.61	58.3	6.84	58.2	7.01	58.1	7.13														
	5.5	5.0	66.4	5.57	66.2	5.87	66.0	6.09	65.9	6.24	65.8	6.39	65.6	6.61	9.5	8.5	68.7	7.18	7.38	6.84	7.53	6.83	7.63	6.83	7.74													
	9.5	8.5	69.8	5.81	69.5	6.09	69.4	6.31	69.3	6.45	69.2	6.59	69.0	6.80	13.0	12.0	72.0	7.34	71.9	7.53	71.8	7.67	71.7	7.76	70.2	7.61	66.2	7.06										
	13.0	12.0	73.1	6.03	72.9	6.30	72.7	6.50	72.6	6.64	72.5	6.77	72.3	6.98	15.0	14.0	75.0	6.15	74.6	6.61	74.4	6.87	74.2	7.07	15.0	14.0	73.9	7.42	73.8	7.60	73.7	7.71	72.9	7.71	66.2	6.83		
	15.0	15.5	76.5	6.23	76.2	6.49	76.1	6.68	76.0	6.81	75.8	6.94	75.7	7.13	17.0	15.5	75.4	7.48	75.2	7.66	75.1	7.79	72.9	7.52	70.2	7.18	66.2	6.67										
	17.0	18.0	78.8	6.36	78.6	6.61	78.5	6.80	78.3	6.92	78.2	7.05	78.1	7.24	19.0	18.0	78.6	7.06	78.4	7.27	78.3	7.40	19.0	18.0	77.8	7.57	77.6	7.75	75.6	7.57	72.9	7.23	66.2	6.42				
	19.0	20.0	80.8	6.46	80.5	6.71	80.4	6.89	80.2	7.01	80.1	7.13	80.0	7.32	22.0	20.0	79.7	7.64	79.5	7.81	75.6	7.34	22.0	20.0	79.2	7.01	70.2	6.69	66.2	6.23								
	22.0	24.0	84.6	6.65	84.4	6.88	84.2	7.06	84.1	7.17	84.0	7.29	83.8	7.46	26.0	24.0	83.5	7.78	79.6	7.38	75.6	6.92	26.0	24.0	83.2	7.61	70.2	6.32	66.2	5.88								
	26.0	30.0	88.4	6.82	88.2	7.04	88.0	7.21	87.9	7.32	87.8	7.43	87.6	7.60	32.0	32.0	92.2	6.98	92.0	7.19	91.8	7.35	91.7	7.46	32.0	32.0	91.6	7.54	91.4	7.72	91.3	7.80	66.2	5.57				
	32.0	35.0	92.0	7.19	91.8	7.35	91.7	7.46	91.6	7.56	91.4	7.64	91.3	7.72	39.0	36.0	96.0	7.12	95.8	7.33	95.6	7.45	95.4	7.58	39.0	36.0	99.9	7.26	99.6	7.45	99.5	7.59	99.4	7.74	66.2	5.05		
	39.0	44.0	99.0	7.26	99.6	7.45	99.5	7.60	99.4	7.70	99.2	7.88	95.6	7.49	44.0	43.0	103	7.35	102	7.54	102	7.68	101	7.79	101	7.95	95.6	7.23	44.0	43.0	103	7.35	102	7.54	101	7.79	66.2	4.82
	44.0	47.0	107	7.47	106	7.65	106	7.79	105	7.95	105	8.11	93.5	7.47	51.0	47.0	107	7.47	106	7.65	105	7.81	105	8.11	93.5	7.47	51.0	47.0	107	7.47	106	7.65	105	7.81	66.2	4.48		
	51.0	54.0	109	7.55	109	7.73	108	7.86	105	7.93	105	8.11	93.5	7.55	54.0	53.0	112	7.63	112	7.80	109	7.93	105	8.11	93.5	7.55	54.0	53.0	112	7.63	112	7.80	109	7.93	66.2	4.34		
	54.0	57.0	113	7.60	115	7.71	115	7.89	109	7.93	109	8.11	93.5	7.60	57.0	56.0	115	7.71	115	7.89	115	8.06	109	8.11	115	7.71	57.0	56.0	115	7.71	115	7.89	115	8.06	66.2	4.22		
	57.0	60.0	115	7.71	115	7.91	115	8.06	115	8.11	115	8.11	93.5	7.71	60.0	56.0	115	7.71	115	7.91	115	8.06	115	8.11	93.5	7.71	60.0	56.0	115	7.71	115	7.91	115	8.06	66.2	4.22		
	60.0	63.0	115	7.71	115	7.91	115	8.06	115	8.11	115	8.11	93.5	7.71	63.0	56.0	115	7.71	115	7.91	115	8.06	115	8.11	93.5	7.71	63.0	56.0	115	7.71	115	7.91	115	8.06	66.2	4.10		
	63.0	66.0	115	7.71	115	7.91	115	8.06	115	8.11	115	8.11	93.5	7.71	66.0	56.0	115	7.71	115	7.91	115	8.06	115	8.11	93.5	7.71	66.0	56.0	115	7.71	115	7.91	115	8.06	66.2	4.10		
	66.0	69.0	115	7.71	115	7.91	115	8.06	115	8.11	115	8.11	93.5	7.71	69.0	56.0	115	7.71	115	7.91	115	8.06	115	8.11	93.5	7.71	69.0	56.0	115	7.71	115	7.91	115	8.06	66.2	4.10		
	69.0	72.0	115	7.71	115	7.91	115	8.06	115	8.11	115	8.11	93.5	7.71	72.0	56.0	115	7.71	115	7.91	115	8.06	115	8.11	93.5	7.71	72.0	56.0	115	7.71	115	7.91	115	8.06	66.2	4.10		
	72.0	75.0	115	7.71	115	7.91	115	8.06	115	8.11	115	8.11	93.5	7.71	75.0	56.0	115	7.71	115	7.91	115	8.06	115	8.11	93.5	7.71	75.0	56.0	115	7.71	115	7.91	115	8.06	66.2	4.10		
	75.0	78.0	115	7.71	115	7.91	115	8.06	115	8.11	115	8.11	93.5	7.71	78.0	56.0	115	7.71	115	7.91	115	8.06	115	8.11	93.5	7.71	78.0	56.0	115	7.71	115	7.91	115	8.06	66.2	4.10		
	78.0	81.0	115	7.71	115	7.91	115	8.06	115	8.11	115	8.11	93.5	7.71	81.0	56.0	115	7.71	115	7.91	115	8.06	115	8.11	93.5	7.71	81.0	56.0	115	7.71	115	7.91	115	8.06	66.2	4.10		
	81.0	84.0	115	7.71	115	7.91	115	8.06	115	8.11	115	8.11	93.5	7.71	84.0	56.0	115	7.71	115	7.91	115	8.06	115	8.11	93.5	7.71	84.0	56.0	115	7.71	115	7.91	115	8.06	66.2	4.10		
	84.0	87.0	115	7.71	115	7.91	115	8.06	115	8.11	115	8.11	93.5	7.71	87.0	56.0	115	7.71	115	7.91	115	8.06	115	8.11	93.5	7.71	87.0	56.0	115	7.71	115	7.91	115	8.06	66.2	4.10		
	87.0	90.0	115	7.71	115	7.91	115	8.06	115	8.11	115	8.11	93.5	7.71	90.0	56.0	115	7.71	115	7.91	115	8.06	115	8.11	93.5	7.71	90.0	56.0	115	7.71	115	7.91	115	8.06	66.2	4.10		
	90.0	93.0	115	7.71	115	7.91	115	8.06	115	8.11	115	8.11	93.5	7.71	93.0	56.0	115	7.71	115	7.91	115	8.06	115	8.11	93.5	7.71	93.0	56.0	115	7.71	115	7.91	115	8.06	66.2	4.10		
	93.0	96.0	115	7.71	115	7.91	115	8.06	115	8.11	115	8.11	93.5	7.71	96.0	56.0	115	7.71	115	7.91	115	8.06	115	8.11	93.5	7.71	96.0	56.0	115	7.71	115	7.91	115	8.06	66.2	4.10		
	96.0	99.0	115	7.71	115	7.91	115	8.06	115	8.11	115	8.11	93.5	7.71	99.0	56.0	115	7.71	115	7.91	115	8.06	115	8.11	93.5	7.71	99.0	56.0	115	7.71	115	7.91	115	8.06	66.2	4.10		
	99.0	102.0	115	7.71	115	7.91	115	8.06	115	8.11	115	8.11	93.5	7.71	102.0	56.0	115	7.71	115	7.91	115	8.06	115	8.11	93.5	7.71	102.0	56.0	115	7.71	115	7.91	115	8.06	66.2	4.10		
	102.0	105.0	115	7.71	115	7.91	115	8.06	115	8.11	115	8.11	93.5	7.71	105.0	56.0	115	7.71	115	7.91	115	8.06	115	8.11	93.5	7.71	105.0	56.0	115	7.71	115	7.91	115	8.06	66.2	4.10		
	105.0	108.0	115	7.71	115	7.91	115	8.06	115	8.11	115	8.11	93.5	7.71	108.0	56.0	115	7.71	115	7.91	115	8.06	115	8.11	93.5	7.71	108.0	56.0	115	7.71	115	7.91	115	8.06	66.2	4.10		
	108.0	111.0	115	7.71	115	7.91	115																															

RXYQ96PBYD

Combination	Outdoor air temp.	Indoor air temp. °FDB												Combination	Outdoor air temp.	Indoor air temp. °FDB																					
		61			65			68			70			72			75			61			65			68			70			72			75		
		TC °FDB	PI MBH	KW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW	TC MBH	PI kW																	
130	-3.64	-4.0	73.0	5.86	72.7	6.35	72.5	6.71	72.3	6.95	72.2	7.19	71.9	7.55	-3.64	-4.0	71.5	8.20	71.3	8.53	71.2	8.78	71.1	8.95	71.0	9.12	70.8	9.37									
	-1.84	-2.2	74.2	6.00	73.9	6.48	73.7	6.83	73.6	7.07	73.4	7.31	73.2	7.66	-1.84	-2.2	72.8	8.30	72.6	8.63	72.4	8.87	72.3	9.03	72.2	9.20	72.1	9.44									
	5.5	5.0	80.2	6.60	79.9	7.04	79.6	7.36	79.5	7.58	79.3	7.80	79.1	8.13	9.5	8.5	83.6	6.90	83.3	7.32	83.0	7.64	82.7	7.94	82.5	8.36											
	13.0	12.0	87.3	7.20	87.0	7.60	86.7	7.90	86.6	8.10	86.4	8.30	86.2	8.60	15.0	14.0	89.5	7.38	89.2	7.76	88.9	8.05	88.5	8.34	88.2	8.60											
	17.0	15.5	91.3	7.50	91.0	7.88	90.8	8.17	90.7	8.36	90.5	8.55	90.3	8.84	19.0	18.0	94.4	7.71	94.1	8.08	93.9	8.36	93.7	8.64	93.5	8.93											
	22.0	20.0	97.0	7.88	96.7	8.24	96.5	8.51	96.3	8.69	96.2	8.87	96.0	9.13	26.0	24.0	103	8.21	102	8.55	102	8.87	102	9.14	101	9.39											
	30.0	28.0	109	8.52	108	8.84	108	9.08	108	9.24	108	9.40	107	9.64	35.0	32.0	115	8.82	115	9.12	114	9.35	114	9.50	114	9.87											
	39.0	36.0	122	9.10	121	9.39	121	9.60	121	9.74	121	9.88	121	10.1	44.0	40.0	129	9.37	129	9.64	128	9.97	128	10.1	127	10.2											
	47.0	43.0	135	9.57	134	9.82	134	10.0	134	10.1	134	10.3	132	10.68	51.0	47.0	143	9.81	142	10.0	142	10.2	140	10.45	139	10.90											
	54.0	50.0	149	9.98	149	10.2	146	10.4	146	9.61	145	9.17	144	8.53	57.0	53.0	156	10.1	153	10.2	146	9.52	140	9.10	135	8.09											
	60.0	56.0	162	10.3	153	9.63	146	9.03	146	8.63	146	8.25	146	7.68	26.0	24.0	103	8.21	102	8.55	102	8.87	102	9.14	101	9.39											
	-3.64	-4.0	72.6	6.45	72.3	6.89	72.1	7.23	72.0	7.45	71.9	7.67	71.7	8.00	-1.84	-2.2	73.9	6.58	73.6	7.01	73.4	7.34	73.3	7.66	73.2	7.97	73.1	8.28									
	5.5	5.0	79.8	7.13	79.5	7.53	79.3	7.83	79.2	8.04	79.0	8.24	78.8	8.54	9.5	8.5	83.2	7.41	82.9	7.79	82.6	8.17	82.3	8.54	82.0	8.91											
	13.0	12.0	86.9	7.69	86.6	8.06	86.4	8.33	86.3	8.52	86.2	8.70	85.9	8.98	15.0	14.0	89.2	7.85	88.9	8.21	88.7	8.65	88.5	9.03	88.3	9.41											
	17.0	15.5	91.0	7.97	90.7	8.32	90.5	8.58	90.3	8.76	90.2	8.93	90.0	9.20	19.0	18.0	94.1	8.16	93.8	8.55	93.6	8.93	93.4	9.35	93.2	9.73											
	22.0	20.0	96.7	8.32	96.4	8.65	96.2	8.89	96.0	9.06	95.9	9.22	95.7	9.47	26.0	24.0	102	8.62	102	9.03	102	9.32	101	9.61	101	9.71											
	30.0	28.0	108	8.91	108	9.20	108	9.42	108	9.57	107	9.72	107	9.94	35.0	32.0	115	9.18	114	9.46	114	9.71	114	9.95	114	10.2											
	39.0	36.0	121	9.45	121	9.71	121	9.91	121	10.0	121	10.2	118	10.98	44.0	40.0	129	9.70	128	9.94	128	10.1	128	10.35	127	10.62											
	47.0	43.0	134	9.88	134	10.1	134	10.3	130	9.89	125	9.44	124	8.77	51.0	47.0	140	10.1	142	10.3	130	9.62	130	9.91	129	10.17											
	54.0	50.0	149	10.3	142	9.71	134	9.11	130	8.71	125	8.32	118	7.75	57.0	53.0	151	9.98	142	9.20	134	8.63	130	8.26	125	7.88											
	60.0	56.0	151	9.45	142	8.72	134	8.19	130	7.84	125	7.50	118	6.99	26.0	24.0	102	8.62	102	9.03	102	9.32	101	9.61	101	9.71											
120	-3.64	-4.0	72.3	7.03	72.0	7.44	71.8	7.74	71.7	7.95	71.6	8.15	71.4	8.46	-1.84	-2.2	73.5	7.15	73.3	7.55	73.1	7.87	73.0	8.00	72.9	8.22											
	5.5	5.0	79.4	7.66	79.2	8.03	79.0	8.30	78.9	8.49	78.7	8.67	78.6	8.95	9.5	8.5	82.8	8.21	82.6	8.50	82.4	8.79	82.2	9.07	82.1	9.35											
	13.0	12.0	86.5	8.17	86.3	8.51	86.1	8.76	86.0	8.93	85.9	9.10	85.7	9.36	15.0	14.0	88.8	8.86	88.6	9.15	88.4	9.44	88.2	9.73	88.0	10.02											
	17.0	15.5	90.6	9.43	90.3	9.75	90.2	9.98	90.0	9.15	90.1	9.31	90.0	9.56	19.0	18.0	93.7	9.61	93.4	9.92	93.3	10.21	93.2	10.50	93.1	10.79											
	22.0	20.0	96.3	8.75	96.0	9.05	95.9	9.28	95.7	9.43	95.6	9.58	95.4	9.81	26.0	24.0	102	9.03	101	9.32	101	9.61	101	9.90	101	10.19											
	30.0	28.0	108	9.29	108	9.56	107	9.77	107	9.90	107	10.0	107	10.2	35.0	32.0	114	9.55	114	9.80	114	9.99	114	10.11	114	10.30											
	39.0	36.0	121	9.79	121	10.0	121	10.2	119	10.1	114	9.64	108	8.96	44.0	40.0	128	9.91	128	10.23	128	10.44	127	10.65	126	10.84											
	47.0	43.0	134	10.2	130	10.2	128	10.2	123	9.82	119	9.38	114	8.66	51.0	47.0	139	9.99	130	10.21	129	10.42	128	10.63	127	10.82											
	54.0	50.0	149	10.46	130	8.73	123	8.19	119	8.19	114	8.49	114	7.90	57.0	53.0	139	8.96	130	8.27	123	7.77	119	7.45	114	6.65											
	60.0	56.0	139	8.50	130	7.85	123	7.38	119	7.08	114	6.77	108	6.33	26.0	24.0	101	9.44	101	9.70	101	9.98	101	10.26	101	10.54											
110	-3.64	-4.0	72.0	7.03	71.8	7.44	71.5	7.74	71.4	7.95	71.3	8.15	71.1	8.46	-1.84	-2.2	72.7	7.15	72.5	7.55	72.3	7.94	72.2	8.32	72.1	8.70											
	5.5	5.0	79.4	7.66	79.2	8.03	79.0	8.30	78.9	8.49	78.7	8.67	78.6	8.95	9.5	8.5	82.8	8.21	82.6	8.50	82.4	8.79	82.2	9.17	82.1	9.55											
	13.0	12.0	86.5	8.17	86.3	8.51	86.1	8.76	86.0	8.93	85.9	9.10	85.7	9.36	15.0	14.0	88.8	8.86	88.6	9.15	88.4	9.44	88.2	9.83	88.0	10.21											
	17.0	15.5	90.6	9.43	90.3	9.75	90.2	9.98	90.0	9.15	90.1	9.31	90.0	9.56	19.0	18.0	93.7	9.61	93.4	9.92	93.3	10.21	93.2	10.59	93.1	10.88											
	22.0	20.0	96.3	8.75	96.0	9.05	95.9	9.28	95.7	9.43	95.6	9.58	95.4	9.81	26.0	24.0	102	9.03	101	9.32	101	9.61	101	9.90	101	10.19											
	30.0	28.0	108	9.29	108	9.56	107	9.77	107	9.90	107	10.0	107	10.2	35.0	32.0	114	9.55	114	9.80	114	9.99	114	10.11	114	10.30											
	39.0	36.0	121	10.1	121	10.18	120	11.0	112	10.1	108	9.66	104	9.22	44.0	40.0	128	8.66	126	8.96	125	9.25	124	9.54	123	9.83											
	47.0	43.0	126	9.55	118	9.31	112	8.73	108	8.35	104	7.98	100	7.44	51.0	47.0	126	8.88	118	8.20	112	7.71	108	7.38	104	7.06											
	54.0	50.0	126	8.42	118	7.78	112	7.31	108																												

RXYQ120PBYD

Combination % °FDB °FWB	Outdoor air temp. MBH kW	Indoor air temp. °FDB												Indoor air temp. °FDB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
		61			65			68			70			72			75			61			65			68			70			72			75																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		TC MBH kW	PI kW	TC MBH kW	PI kW	TC MBH kW	PI kW	TC MBH kW	PI kW	TC MBH kW	PI kW	TC MBH kW	PI kW	TC MBH kW	PI kW	TC MBH kW	PI kW	TC MBH kW	PI kW	TC MBH kW	PI kW	TC MBH kW	PI kW	TC MBH kW	PI kW	TC MBH kW	PI kW	TC MBH kW	PI kW																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
130	-3.64	-4.0	83.3	5.64	82.9	6.26	82.6	6.72	82.4	7.03	82.2	7.34	82.0	7.81	-3.64	-4.0	81.5	8.64	81.2	9.07	81.0	9.39	80.9	8.07	9.82	80.6	10.1	-1.84	-2.2	82.9	8.76	82.6	9.18	82.4	9.50	82.3	9.71	82.2	9.92	82.0	10.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	-1.84	-2.2	84.7	5.82	84.3	6.43	84.0	6.88	83.9	7.18	83.7	7.49	83.4	7.94	-1.84	-2.2	89.6	9.29	89.3	9.67	89.2	9.97	89.0	10.2	88.9	10.4	88.7	10.6	5.5	5.0	91.4	6.57	91.0	7.13	90.8	7.55	90.6	7.83	90.4	8.11	90.1	8.53																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	9.5	8.5	95.3	6.95	94.9	7.49	94.6	7.89	94.4	8.16	94.2	8.43	93.9	8.83	13.0	12.0	99.5	7.34	98.8	8.23	98.6	8.49	98.4	8.74	98.2	9.13	15.0	14.0	102	7.55	102	8.05	101	8.42	101	8.82	101	9.30	15.0	14.0	102	7.55	102	8.05	101	8.42	101	8.82	101	9.30																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	17.0	15.5	104	7.71	104	8.20	103	8.57	103	8.81	103	9.06	103	9.42	19.0	18.0	108	7.98	107	8.45	107	8.81	107	9.04	107	9.28	106	9.63	22.0	20.0	111	8.19	110	8.65	110	8.99	110	9.22	109	9.45	109	9.80	26.0	24.0	117	8.60	116	9.03	116	9.36	116	9.79	115	10.1	30.0	28.0	123	9.40	123	9.71	123	9.91	123	10.1	122	10.4	35.0	32.0	131	9.37	130	9.75	130	10.0	130	10.4	129	10.7	39.0	36.0	139	9.73	138	10.1	138	10.4	138	10.5	137	10.7	137	11.0	44.0	40.0	147	10.1	146	10.4	146	10.7	146	11.0	145	11.3	47.0	43.0	153	10.3	153	10.6	153	10.9	152	11.2	152	11.4	51.0	47.0	162	10.6	162	10.9	161	11.1	161	11.3	161	11.4	54.0	50.0	169	10.8	169	11.1	169	11.3	169	11.5	168	11.6	57.0	53.0	173	11.0	173	11.3	176	11.5	176	11.6	169	11.7	170	11.2	184	11.5	184	11.8	182	11.5	182	11.8	181	11.5	181	11.8	180	11.5	180	11.8	179	11.5	179	11.8	178	11.5	178	11.8	177	11.5	177	11.8	176	11.5	176	11.8	175	11.5	175	11.8	174	11.5	174	11.8	173	11.5	173	11.8	172	11.5	172	11.8	171	11.5	171	11.8	170	11.5	170	11.8	169	11.5	169	11.8	168	11.5	168	11.8	167	11.5	167	11.8	166	11.5	166	11.8	165	11.5	165	11.8	164	11.5	164	11.8	163	11.5	163	11.8	162	11.5	162	11.8	161	11.5	161	11.8	160	11.5	160	11.8	159	11.5	159	11.8	158	11.5	158	11.8	157	11.5	157	11.8	156	11.5	156	11.8	155	11.5	155	11.8	154	11.5	154	11.8	153	11.5	153	11.8	152	11.5	152	11.8	151	11.5	151	11.8	150	11.5	150	11.8	149	11.5	149	11.8	148	11.5	148	11.8	147	11.5	147	11.8	146	11.5	146	11.8	145	11.5	145	11.8	144	11.5	144	11.8	143	11.5	143	11.8	142	11.5	142	11.8	141	11.5	141	11.8	140	11.5	140	11.8	139	11.5	139	11.8	138	11.5	138	11.8	137	11.5	137	11.8	136	11.5	136	11.8	135	11.5	135	11.8	134	11.5	134	11.8	133	11.5	133	11.8	132	11.5	132	11.8	131	11.5	131	11.8	130	11.5	130	11.8	129	11.5	129	11.8	128	11.5	128	11.8	127	11.5	127	11.8	126	11.5	126	11.8	125	11.5	125	11.8	124	11.5	124	11.8	123	11.5	123	11.8	122	11.5	122	11.8	121	11.5	121	11.8	120	11.5	120	11.8	119	11.5	119	11.8	118	11.5	118	11.8	117	11.5	117	11.8	116	11.5	116	11.8	115	11.5	115	11.8	114	11.5	114	11.8	113	11.5	113	11.8	112	11.5	112	11.8	111	11.5	111	11.8	110	11.5	110	11.8	109	11.5	109	11.8	108	11.5	108	11.8	107	11.5	107	11.8	106	11.5	106	11.8	105	11.5	105	11.8	104	11.5	104	11.8	103	11.5	103	11.8	102	11.5	102	11.8	101	11.5	101	11.8	100	11.5	100	11.8	99	11.5	99	11.8	98	11.5	98	11.8	97	11.5	97	11.8	96	11.5	96	11.8	95	11.5	95	11.8	94	11.5	94	11.8	93	11.5	93	11.8	92	11.5	92	11.8	91	11.5	91	11.8	90	11.5	90	11.8	89	11.5	89	11.8	88	11.5	88	11.8	87	11.5	87	11.8	86	11.5	86	11.8	85	11.5	85	11.8	84	11.5	84	11.8	83	11.5	83	11.8	82	11.5	82	11.8	81	11.5	81	11.8	80	11.5	80	11.8	79	11.5	79	11.8	78	11.5	78	11.8	77	11.5	77	11.8	76	11.5	76	11.8	75	11.5	75	11.8	74	11.5	74	11.8	73	11.5	73	11.8	72	11.5	72	11.8	71	11.5	71	11.8	70	11.5	70	11.8	69	11.5	69	11.8	68	11.5	68	11.8	67	11.5	67	11.8	66	11.5	66	11.8	65	11.5	65	11.8	64	11.5	64	11.8	63	11.5	63	11.8	62	11.5	62	11.8	61	11.5	61	11.8	60	11.5	60	11.8	59	11.5	59	11.8	58	11.5	58	11.8	57	11.5	57	11.8	56	11.5	56	11.8	55	11.5	55	11.8	54	11.5	54	11.8	53	11.5	53	11.8	52	11.5	52	11.8	51	11.5	51	11.8	50	11.5	50	11.8	49	11.5	49	11.8	48	11.5	48	11.8	47	11.5	47	11.8	46	11.5	46	11.8	45	11.5	45	11.8	44	11.5	44	11.8	43	11.5	43	11.8	42	11.5	42	11.8	41	11.5	41	11.8	40	11.5	40	11.8	39	11.5	39	11.8	38	11.5	38	11.8	37	11.5	37	11.8	36	11.5	36	11.8	35	11.5	35	11.8	34	11.5	34	11.8	33	11.5	33	11.8	32	11.5	32	11.8	31	11.5	31	11.8	30	11.5	30	11.8	29	11.5	29	11.8	28	11.5	28	11.8	27	11.5	27	11.8	26	11.5	26	11.8	25	11.5	25	11.8	24	11.5	24	11.8	23	11.5	23	11.8	22	11.5	22	11.8	21	11.5	21	11.8	20	11.5	20	11.8	19	11.5	19	11.8	18	11.5	18	11.8	17	11.5	17	11.8	16	11.5	16	11.8	15	11.5	15	11.8	14	11.5	14	11.8	13	11.5	13	11.8	12	11.5	12	11.8	11	11.5	11	11.8	10	11.5	10	11.8	9	11.5	9	11.8	8	11.5	8	11.8	7	11.5	7	11.8	6	11.5	6	11.8	5	11.5	5	11.8	4	11.5	4	11.8	3	11.5	3	11.8	2	11.5	2	11.8	1	11.5	1	11.8	0	11.5	0	11.8	-1	11.5	-1	11.8	-2	11.5	-2	11.8	-3	11.5	-3	11.8	-4	11.5	-4	11.8	-5	11.5	-5	11.8	-6	11.5	-6	11.8	-7	11.5	-7	11.8	-8	11.5	-8	11.8	-9	11.5	-9	11.8	-10	11.5	-10	11.8	-11	11.5	-11	11.8	-12	11.5	-12	11.8	-13	11.5	-13	11.8	-14	11.5	-14	11.8	-15	11.5	-15	11.8	-16	11.5	-16	11.8	-17	11.5	-17	11.8	-18	11.5	-18	11.8	-19	11.5	-19	11.8	-20	11.5	-20	11.8	-21	11.5	-21	11.8	-22	11.5	-22	11.8	-23	11.5	-23	11.8	-24	11.5	-24	11.8	-25	11.5	-25	11.8	-26	11.5	-26	11.8	-27	11.5	-27

RXYQ144PBYD

Combination	Outdoor air temp.	Indoor air temp. °FDB												Indoor air temp. °FDB															
		61				65				68				70				72				75				61			
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
%	°FDB	°FWB	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW											
130	-3.64	-4.0	111	9.48	111	10.2	110	10.7	110	11.0	110	11.4	110	11.9	110	12.1	110	12.5	110	12.8	108	13.6	108	13.9	108	14.1	108	14.5	
	-1.84	-2.2	113	9.68	113	10.3	112	10.9	112	11.2	112	11.5	112	12.0	112	12.2	112	12.7	112	13.0	110	13.7	110	14.0	110	14.2	110	14.6	
	5.5	5.0	122	10.5	122	11.1	121	11.6	121	11.9	121	12.2	121	12.5	121	12.7	121	12.7	121	12.7	119	14.3	119	14.5	119	14.7	119	15.0	
	9.5	8.5	127	11.0	127	11.5	126	12.0	126	12.3	126	12.6	126	13.0	126	13.0	126	13.0	126	13.0	124	14.6	124	15.0	124	15.3	124	15.5	
	13.0	12.0	133	11.4	132	12.0	132	12.4	132	12.7	132	12.9	131	13.1	132	13.4	131	13.4	132	13.4	130	14.8	130	14.8	130	15.2	130	15.5	
	15.0	14.0	136	11.6	136	12.2	136	12.6	135	12.9	135	13.1	135	13.6	135	13.6	135	13.6	135	13.6	134	15.2	134	15.4	132	15.5	132	15.5	
	17.0	15.5	139	11.8	139	12.4	138	12.8	138	13.0	138	13.3	138	13.6	138	13.6	138	13.6	138	13.6	137	14.8	137	14.8	137	15.1	137	15.1	
	19.0	18.0	144	12.1	143	12.6	143	13.0	143	13.3	143	13.6	143	13.9	143	13.9	143	13.9	143	13.9	142	14.8	142	14.8	142	14.9	142	14.9	
	22.0	20.0	148	12.3	147	12.9	147	13.2	147	13.5	147	13.7	146	14.1	146	14.1	146	14.1	146	14.1	145	14.8	145	14.8	145	14.9	145	14.9	
	26.0	24.0	156	12.8	156	13.3	156	13.7	155	13.9	155	14.1	155	14.5	155	14.5	155	14.5	155	14.5	154	15.1	154	15.1	153	15.3	153	15.3	
	30.0	28.0	165	13.3	165	13.7	165	14.1	164	14.3	164	14.5	164	14.8	164	14.8	164	14.8	164	14.8	163	15.5	163	15.5	163	15.8	163	15.8	
	35.0	32.0	175	13.7	174	14.0	174	14.4	174	14.8	174	15.1	174	15.3	174	15.6	174	15.6	174	15.6	173	15.8	173	15.8	173	16.0	173	16.0	
120	-3.64	-4.0	111	10.3	110	10.9	110	11.4	110	11.7	109	12.0	109	12.5	109	12.5	109	12.5	109	12.5	108	14.4	108	14.8	108	15.1	108	15.1	
	-1.84	-2.2	112	10.5	112	11.1	112	11.6	112	11.9	111	12.2	111	12.7	111	12.7	111	12.7	111	12.7	110	14.5	110	14.9	110	15.2	110	15.2	
	5.5	5.0	122	11.3	121	11.8	121	12.3	121	12.6	120	12.9	120	13.2	120	13.3	120	13.3	120	13.3	119	15.1	119	15.3	118	15.4	118	15.4	
	9.5	8.5	127	11.7	126	12.2	126	12.6	126	12.9	126	13.2	126	13.5	126	13.6	126	13.6	126	13.6	124	15.2	124	15.4	124	15.6	124	15.6	
	13.0	12.0	132	12.1	132	12.6	132	13.0	132	13.3	131	13.5	131	13.9	131	13.9	131	13.9	131	13.9	130	15.4	130	15.4	130	15.8	130	15.8	
	15.0	14.0	136	12.3	135	12.8	135	13.2	135	13.6	135	13.9	135	14.1	135	14.1	135	14.1	135	14.1	134	15.3	134	15.3	134	15.4	134	15.4	
	17.0	15.5	139	12.5	138	13.0	138	13.3	138	13.6	137	13.8	137	14.0	137	14.2	137	14.2	137	14.2	136	14.7	136	14.7	136	14.8	136	14.8	
	19.0	18.0	143	12.7	143	13.2	143	13.6	143	14.0	143	14.4	143	14.8	143	14.8	143	14.8	143	14.8	142	14.7	142	14.7	142	14.8	142	14.8	
	22.0	20.0	147	13.0	147	13.4	147	13.8	146	14.0	146	14.4	146	14.6	146	14.6	146	14.6	146	14.6	145	15.1	145	15.1	145	15.2	145	15.2	
	26.0	24.0	156	13.4	156	13.8	155	14.2	155	14.6	154	14.8	154	15.0	154	15.0	154	15.0	154	15.0	153	15.4	153	15.4	153	15.5	153	15.5	
	30.0	28.0	165	13.8	164	14.2	164	14.5	164	14.8	164	14.8	164	15.0	164	15.0	164	15.0	164	15.0	163	15.5	163	15.5	163	15.8	163	15.8	
110	-3.64	-4.0	110	11.1	110	11.7	109	12.1	109	12.4	109	12.7	109	12.9	109	13.2	109	13.2	109	13.2	108	15.1	108	15.3	108	15.4	108	15.4	
	-1.84	-2.2	112	11.3	112	11.9	111	12.3	111	12.6	111	12.9	111	13.1	111	13.3	111	13.3	111	13.3	110	14.7	110	14.9	110	15.1	110	15.2	
	5.5	5.0	120	12.0	121	12.6	120	12.9	120	13.2	120	13.5	120	13.9	120	14.2	120	14.2	120	14.2	119	15.1	119	15.3	118	15.4	118	15.4	
	9.5	8.5	126	12.4	126	12.9	126	13.3	125	13.5	125	13.8	125	14.2	125	14.2	125	14.2	125	14.2	124	15.2	124	15.4	124	15.6	124	15.6	
	13.0	12.0	132	12.8	132	13.2	131	13.6	131	13.8	131	14.1	131	14.4	131	14.4	131	14.4	131	14.4	130	15.4	130	15.4	130	15.8	130	15.8	
	15.0	14.0	135	13.0	135	13.4	135	13.8	135	14.0	134	14.3	134	14.6	134	14.6	134	14.6	134	14.6	133	15.1	133	15.1	133	15.4	133	15.4	
	17.0	15.5	138	13.1	138	13.6	137	13.9	137	14.2	137	14.4	137	14.7	137	14.7	137	14.7	137	14.7	136	14.7	136	14.7	136	14.8	136	14.8	
	19.0	18.0	143	13.4	142	13.8	142	14.2	142	14.4	142	14.6	142	14.8	142	14.8	142	14.8	142	14.8	141	14.9	141	14.9	141	14.9	141	14.9	
	22.0	20.0	147	13.6	146	14.0	146	14.3	146	14.6	146	14.8	146	14.8	146	14.8	146	14.8	146	14.8	145	15.1	145	15.1	145	15.2	145	15.2	
	26.0	24.0	155	14.0	155	14.5	155	14.9	155	15.1	154	15.4	154	15.4	154	15.4	154	15.4	154	15.4	153	15.5	153	15.5	153	15.6	153	15.6	
	30.0	28.0	164	14.4	164	15.3	163	15.5	162	15.6	162	15.8	162	15.8	162	15.8	162	15.8	162	15.8	161	15.8	161	15.8	161	15.9	161	15.9	
100	-3.64	-4.0	110	12.0	109	12.5	109	12.9	109	13.1	109	13.4	108	108	108	108	108	108	108	108	108	107	15.3	107	15.4	107	15.4	107	15.4
	-1.84	-2.2	111	12.1	111	12.6	111	13.0	111	13.3	111	13.5	110	13.9	110	13.9	110	13.9	110	13.9	109	15.1	109	15.2	109	15.2	109	15.2	
	5.5	5.0	120	12.8	120	13.3	120	13.6	120	13.9	120	14.1	120	14.4	120	14.4	120	14.4	120	14.4	119	14.8	119	14.9	119	15.0	119	15.0	
	9.5	8.5	126	13.1	125	13.6	125	13.9	125	14.1	125	14.4	125	14.7	125	14.7	125	14.7	125	14.7	124	15.2	124	15.3	124	15.4	124	15.4	
	13.0	12.0	131	13.4	131	13.9	131	14.2	131	14.4	130	14.6	130	15.0	130	15.0	130	15.0	13										

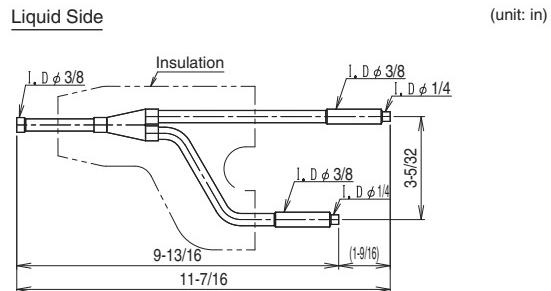
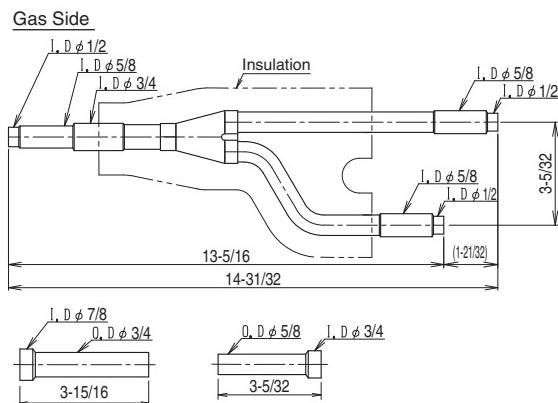
4. REFNET Pipe System

4.1 REFNET Joint (Branch Kit)

RXYQ72~360PBYD (460V)

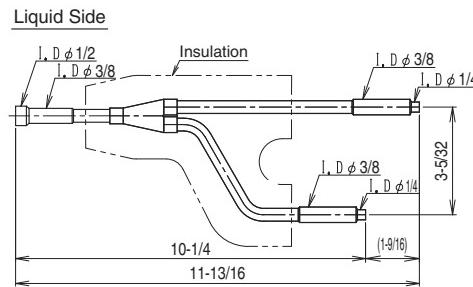
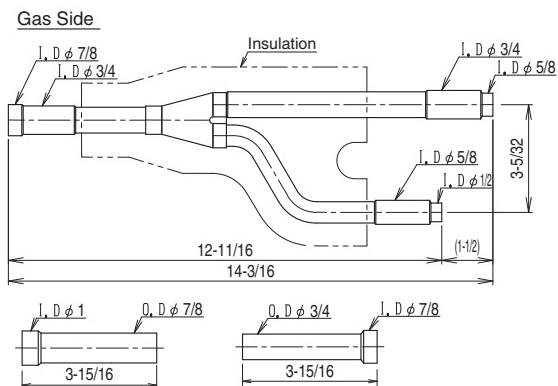
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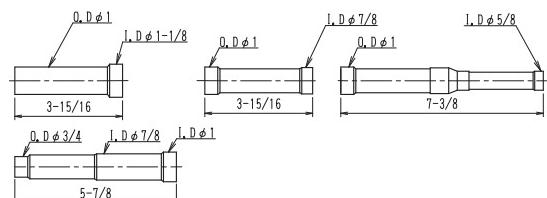
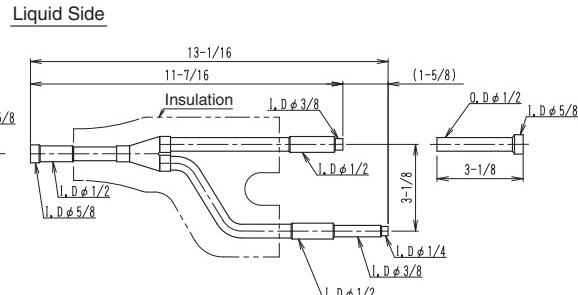
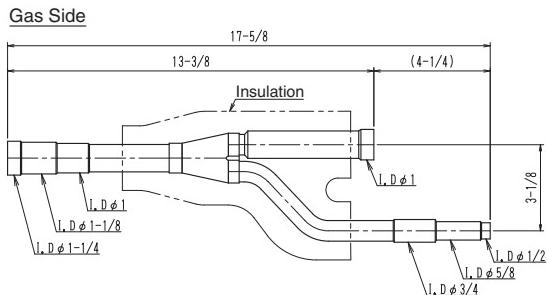
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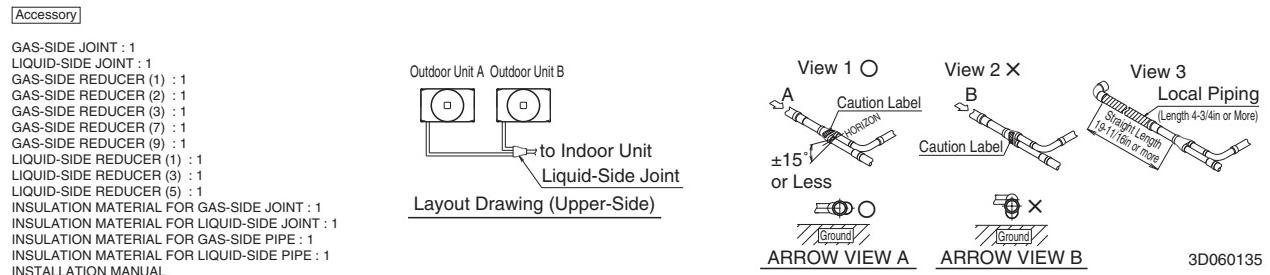
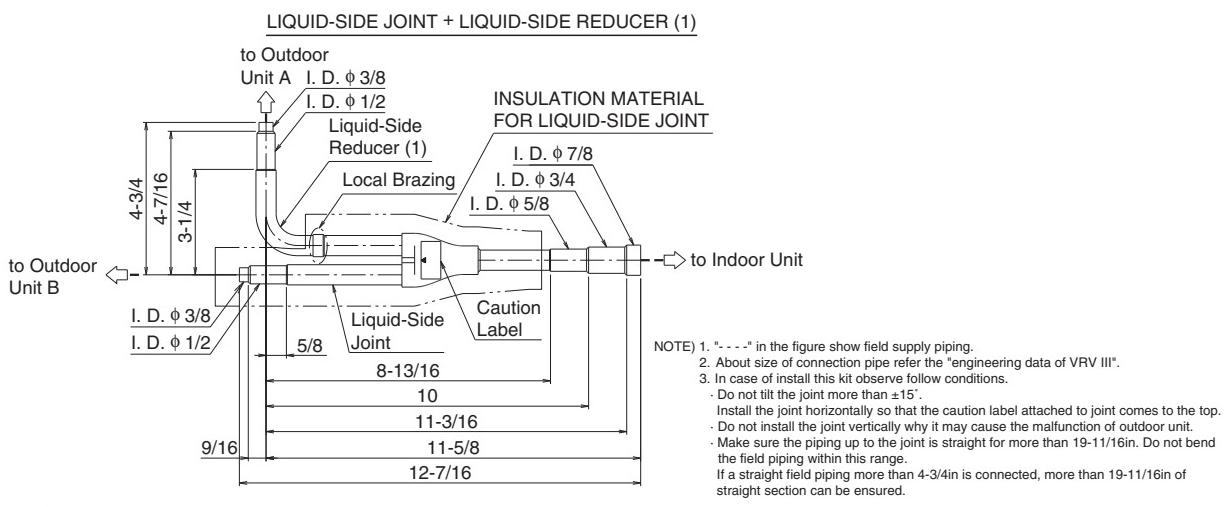
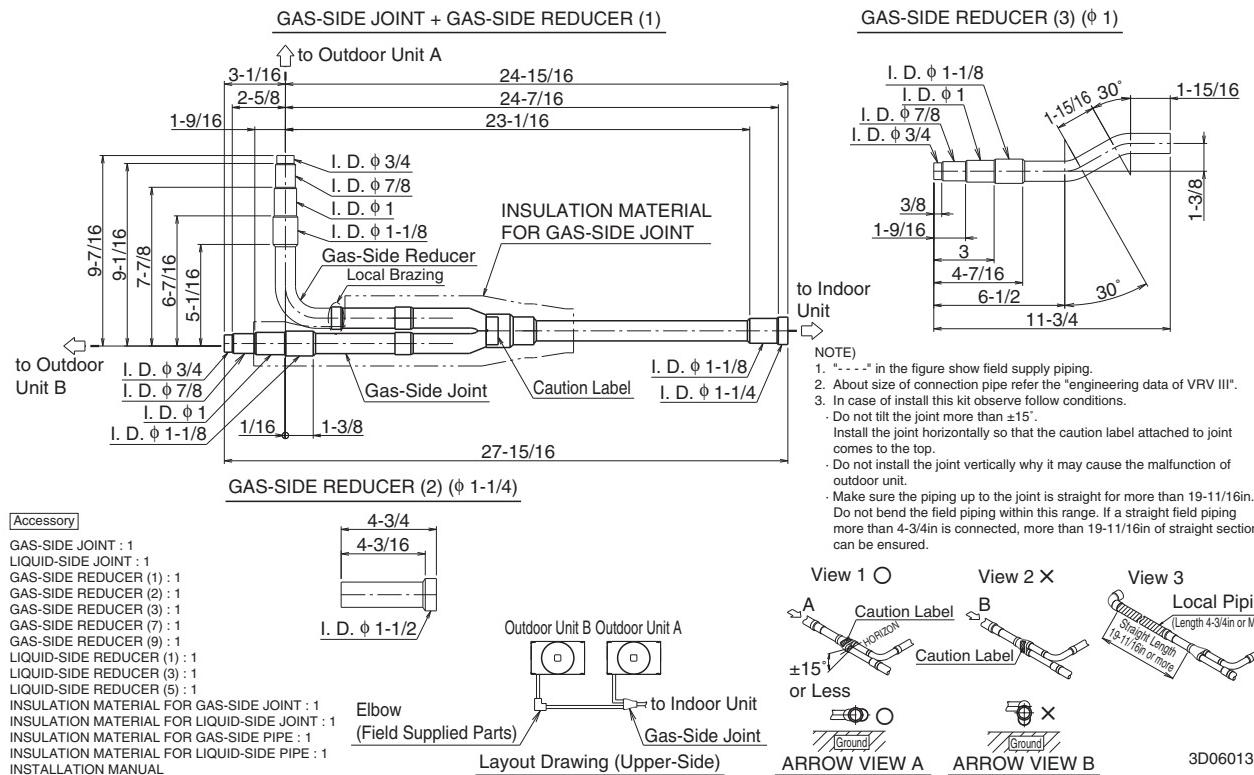
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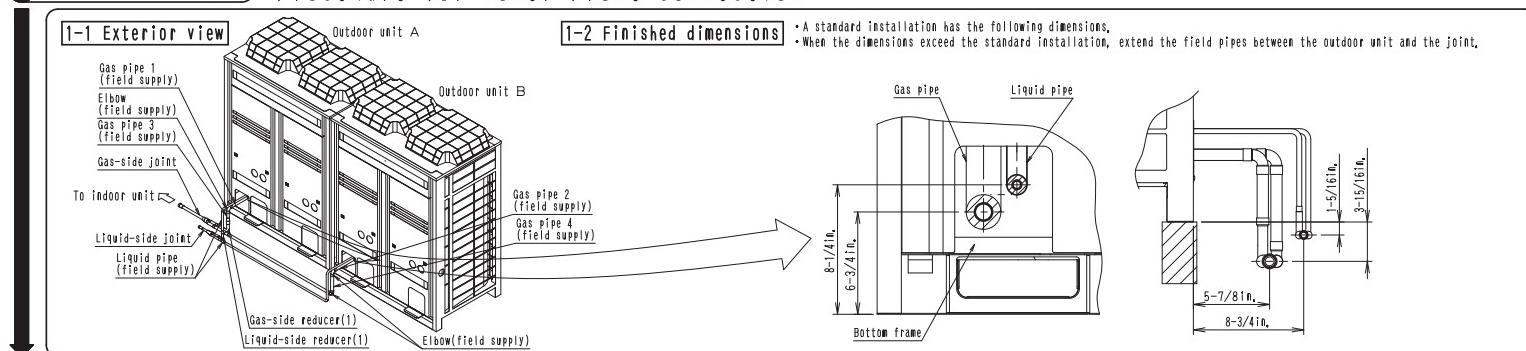
D3K04887A

4.3 Outdoor Unit Multi Connection Piping Kit

RXYQ144~240PBYD (460V)
RXYQ168~240PBTJ (208/230V)
BHFP22P100U



1 Installation examples Procedure for Lower Front Connection



2 Connection of gas and liquid pipes

2-1 Cutting the field supply gas pipe 1 to 4

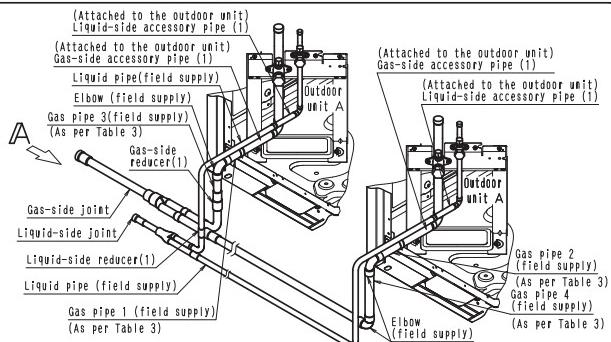
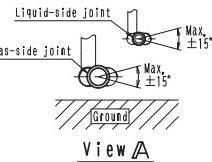
Cut the pipes according to Table 3
Caution • The L dimensions of the gas pipe 1 to 4 in Table 3 show those when the field supply elbows have B dimension in Table 2 shown in Procedure for Front Connection, 2 Connection of gas and liquid pipes.
 If the B dimension is not same with Table 2, see Table 2 and 3, and adjust them accordingly.

Table 3

Model type	Gas pipe 1 (field supply) L (in.)	Gas pipe 2 (field supply) L (in.)	Gas pipe 3 (field supply) L (in.)	Gas pipe 4 (field supply) L (in.)
72P	5-1/8	6-1/2	2-5/16	9-5/16
96P	3-15/16	5-5/16	3-1/4	8-7/8
120P	2-5/8	4	5-7/8	8-3/8

2-2 Connection of pipes

- Connect the gas and liquid pipes as shown in the figure at the right.
 (When connecting the pipes, first connect the gas-side joint and the gas-side reducer (1), the liquid-side joint and the liquid-side reducer (1).)
- See the caution section in the Installation manual attached to the outdoor unit for brazing pipes and connecting pipes with flare nuts.
- Install the joint in such a way that the attached face of the caution label becomes horizontal (See the View A).



3 The work after the kit is connected

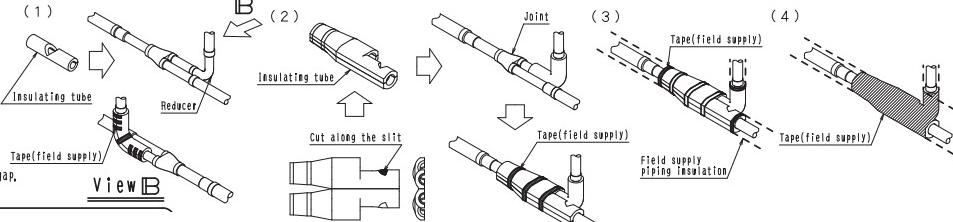
Connection of piping between the outdoor unit and the indoor unit

Air tight test

Insulation of joints

- Fit the insulating tube to the reducer and temporarily keep it in place with tape.
- Cut insulating tube along the slit. (See the figure at the right.) Fit it to the joint and temporarily keep it in place with tape without leaving a gap between the insulating tube mating faces.
- Seal the seam between the insulating tube and the field supply piping insulation with the field supply tape.
- Wrap the tape around the insulating tube attached to the joint without leaving a gap. (section shown in the figure at the right.)

Follow the instructions in the Installation manual included with the outdoor unit, when performing installation work.

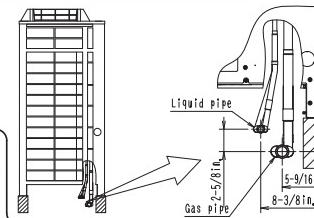


1 Installation examples Procedure for Bottom Connection

Caution

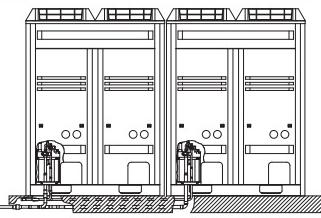
This installation is only possible if there is enough space to perform brazing and racking underneath the outdoor unit. If the central drain pan kit and/or vibration proofing base are used, the dimensions marked with "*" in the figure below will vary. See the table below and determine the length of the field pipes.

1-1 Exterior view



Distance from the foundation top (mm)
3-15/16in*

(units : in.)	
Separately-sold item also used	*
Central drain pan kit	5-1/2
Vibration proofing base	9-3/16
Vibration proofing base+ central drain pan kit	



2 Connection of gas and liquid pipes

2-1 Cutting the field supply gas pipe 1 and 2, and the Gas-side accessory pipe(3) attached to the outdoor unit

Cut the pipes according to Table 4 or 5.

Caution • The "L" dimensions of the gas pipe 1 in Table 4 and the gas pipe 2 in Table 5 are identical to the "B" dimensions in table 2, those of "field supply elbow" shown in the procedure of front connection, which are equivalent to "straight size joint" without stopper. If the "B" dimensions are not identical to table 2 or "straight size joint" has a stopper, adjust them as table 2,4 and 5.

■ Table 4 (For Outdoor unit A Side)

Model type	Gas-side accessory pipe(3)			Gas pipe 1 (field supply)		
	B (in.)	*dimensions	L (in.)	*dimensions	L (in.)	*dimensions
For 3-15/16	For 5-1/2	For 9-3/16	For 3-15/16	For 5-1/2	For 9-3/16	For 3-15/16
72P	4	2-1/2	1-7/8	3-1/8	3-3/8	3-5/8
96P	2-13/16	1-5/16	1	5-1/4		
120P	0	2-1/16	(no cutting)	0	5-1/4	

■ Table 5 (For Outdoor unit B Side)

Model type	Gas-side accessory pipe(3)			Gas pipe 2 (field supply)		
	B (in.)	*dimensions	L (in.)	*dimensions	L (in.)	*dimensions
For 3-15/16	For 5-1/2	For 9-3/16	For 3-15/16	For 5-1/2	For 9-3/16	For 3-15/16
72P	0	(no cutting)	0	3	4-1/2	8-1/4
96P	1 1/16	(no cutting)	0	3-7/16	4-5/16	8
120P	1-1/4	(no cutting)	0	3-3/4	4-1/16	7-3/4

2-2 Connection of pipes

• Remove the knockout plate on the bottom frame. (See the installation manual attached to the outdoor unit)

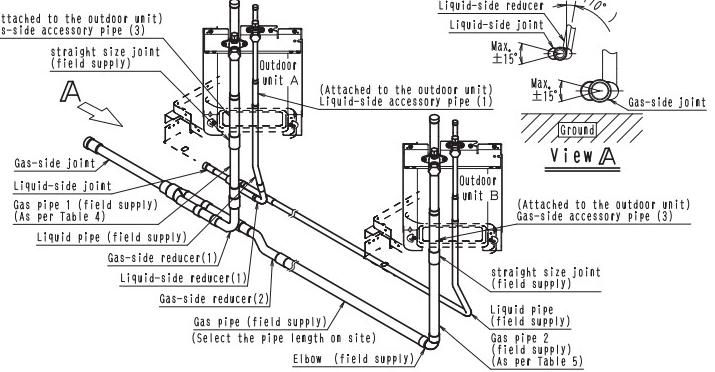
• Connect the gas and liquid pipe as shown in the figure below. (When connecting the pipes, first connect the gas-side joint and the gas-side reducer(1), the liquid-side joint and the liquid-side reducer (1).)

• See the caution section in the installation manual attached to the outdoor unit for brazing pipes and connecting pipes with flare nuts.

• Install the joint in such a way that the attached face of the caution label becomes horizontal. (See the view A)

• Connect the liquid side reducer(1) tilting approx. 10° and bend the field supply liquid pipe up to the stop valve as shown in the figure below. (See the view A)

Caution • If the liquid side reducer is connected vertically without bending the liquid pipes, the insulating tube will not fit,



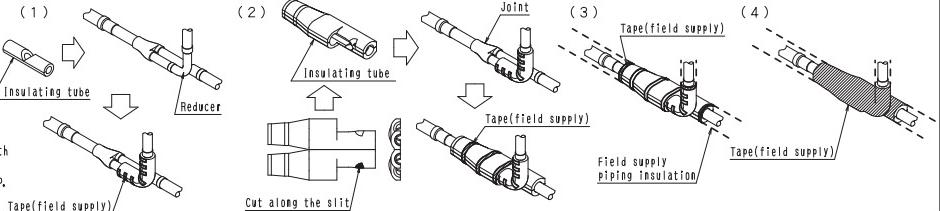
3 The work after the kit is connected

Connection of piping between the outdoor unit and the indoor unit

Air tight test

Insulation of joints

- (1) Fit the insulating tube to the reducer and temporarily keep it in place with tape.
- (2) Cut insulating tube along the slit. (See the figure at the right.)
- Fit it to the joint and temporarily keep it in place with tape without leaving a gap between the insulating tube mating faces.
- Seal the seam between the insulating tube and the field supply piping insulation with the field supply tape.
- Wrap the tape around the insulating tube attached to the joint without leaving a gap. (section shown in the figure at the right.)





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ACCESSORIES

Job Name: GSU Humanities - Law Building

Location: Atlanta, GA

Purchaser: Gainesville Mechanical

Engineer: Stevens & Wilkinson

Submitted To: For: Reference Approval Construction

Submitted By: Date: 12.23.13

Unit Designation: Schedule #:

Model No.:

FEATURES / BENEFITS

- Integrate Daikin VRV, SkyAir and Duct-Free Split Systems with third party building automation systems supporting the BACnet protocol.
- BACnet Application Specific Controller (B-ASC) device profile compatible with BACnet (ANSI / ASHRAE-135)
- BACnet IP Data Link Layer (Annex J)
- Supports COV – Change of Value, Property Array Index and Segmented Requests
- IPV6 and Foreign Device Registration capability
- BTL Certification (Operating System Version 6.2 and Later)

**Power:**

Power supply (externally supplied)	24VAC, 50/60Hz
Power consumption	20 Watts maximum (40 VA Transformer Recommended)

Operating conditions:

Surrounding temperature	14° F to 122° F
Storage temperature	5° F to 140° F
Humidity (% Relative)	0% to 98% (non-condensing)
Dimensions (H x W x D)	10-13/16" x 10-11/32" x 2-11/16"
Maximum number of outdoor units	20 (40 with DAM411B51)
Maximum number of indoor units	128 (256 with DAM411B51)
Temperature Unit	Degrees Celsius (Fixed)

Connectivity:

DIII-Net x 2	AC equip. communication line
10BASE-T or 100BASE-TX	Interface to BACnet network
Di (Digital Input) x 4	Forced Off Function
Do (Digital Output) x 2	A/C malfunction indication

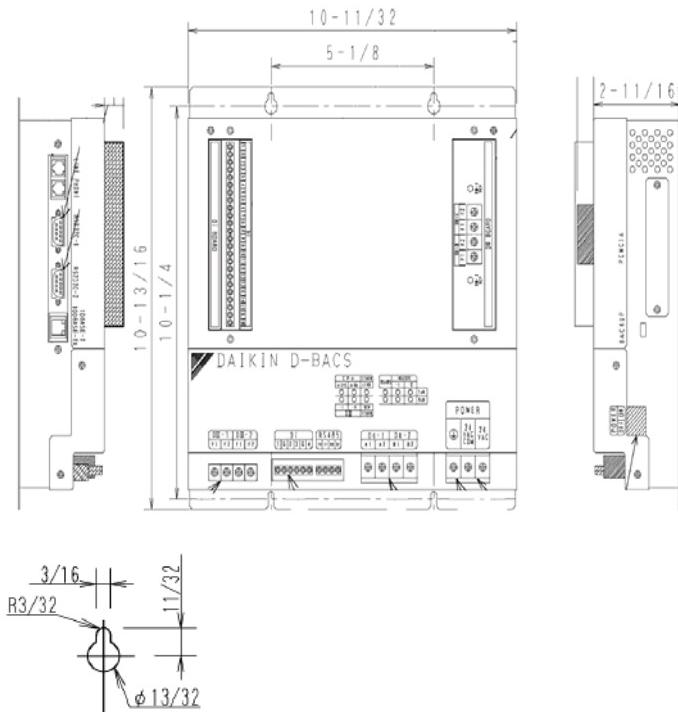
Options:

DAM411B51	Adds (2) DIII-Net lines
DAM412B51	Adds (12) Pulse inputs for PPD

Certifications:

FCC Part 15 Subpart B Class A

Configuration and engineering for each project are necessary.

**SPECIFICATIONS OF COMMUNICATIONS CABLING (DIII-NET)**

TYPE	2-conductor, stranded, non-shielded copper cable / PVC or vinyl jacket
SIZE	AWG18-2
TOTAL LENGTH	Maximum wiring distance between units: 3,280 ft Maximum wiring length: 6,550 ft

Daikin air conditioner monitoring and control points accessible through the DMS502B71

Check the appropriate box indicating the required integrated points for this project.

	Function	Description
Monitoring points	Start / stop status	Monitors the start / stop status of the air conditioner.
	Alarm	Monitors whether or not the air conditioner is operating normally, and issues an alarm if the air conditioner has a malfunction.
	Malfunction code	Displays a malfunction code specified by the manufacturer if an air conditioner in the system has a malfunction.
	Air-conditioning mode	Monitors if the air conditioner is cooling, heating, or ventilating.
	Room temperature (Note 1)	Monitors and displays the room temperature.
	Filter sign	Checks if the filter is clogged and monitors whether or not it can still be used.
	Thermostat status	Monitors whether or not the air conditioner is properly controlling the temperature.
	Compressor status	Monitors if the compressor of the outdoor unit connected to the indoor unit is properly operating.
	Indoor fan status	Monitors if the indoor unit's fan is properly operating.
	Heater operation status	Monitors if the indoor unit's heater is properly operating.
Operation, configuration, and monitoring points	Accumulated power	Outputs indoor unit's accumulated power consumption.
	Start / stop operation (Note 2)	Starts / stops the air conditioner and monitors the result.
	Air-conditioning mode setting (Note 2)	Sets the cooling / heating / ventilating / auto air-conditioning mode and monitors the result.
	Room temperature setting (Note 2)	Sets the room temperature of the air conditioner and monitors the result.
	Filter sign and reset	Checks if the filter is clogged and resets the status as required.
	Remote controller enable / disable (Note 2)	Enables or disables the remote controller so that it can or cannot be used to control the air conditioner's start / stop / air-conditioning mode / room temperature.
	Lower central device operation enable / disable	Enables or disables operation of a central device connected to the DIII network.
	Air flow rate setting (Note 2)	Sets the air flow rate and monitors the result.
	Air direction setting (Note 2)	Sets the air direction and monitors the result.
	Forced system stop	In response to the forced stop command, checks whether clearance or setting is required and performs the required action.
	Forced thermostat disable	In response to the forced thermostat disable command, checks whether clearance or setting is required and performs the required action.
	Energy saving	In response to the energy saving command, checks whether clearance or setting is required and performs the required action.

Application Notes

1. Room temperature data (BACnet object name RoomTemp_XXX) is reported from the Daikin indoor units embedded return air thermistor. This applies to all VRV indoor units styles and capacities. During periods when the indoor unit is turned off or during certain operating modes that cycle the fan off including defrost operation, hot-start and system pressure equalization, the reported temperature may not accurately reflect the actual space temperature. For applications where this temperature value will be primary to system control including mode and temperature setpoint management, it is recommended that the Daikin remote temperature sensor (Part No. KRCS01-1A) is specified for each indoor unit and installed within the occupied space.
2. The Daikin indoor unit maintains the settings for temperature, start / stop status, operating mode, air direction and fan speed in non-volatile memory each time they are changed. These settings will not be lost upon a power loss event.
3. BACnet® is a registered trademark of ASHRAE.

Project Name: GSU Humanities - Law Building

Location: Atlanta, GA

Approval:

Engineer: Stevens & Wilkinson

Date: 12.23.13

Submitted to: Gainesville Mechanical

Construction:

Submitted by:

Unit #:

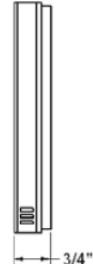
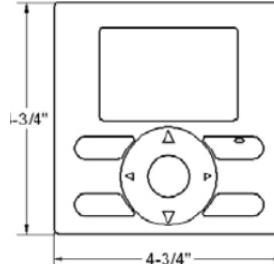
Reference:

Drawing #:

For use with the following VRV indoor unit models: FXAQ, FXDQ, FXFQ, FXHQ, FXLQ, FXML, FXML_MF, FXNQ, FXSQ, FXTQ, FXZQ

For use with the following Daikin SkyAir indoor unit models: FAQ, FBQ, FCQ, FHQ, FTQ

Model	BRC1E72
Description	New Navigation Remote Controller
Maximum Indoor Units	16
Communication Wire	18AWG-2, No polarity Stranded, Non-shielded
Total Wiring Length	1,640 ft (500 m)
Communication Protocol	Daikin Proprietary P1P2 protocol
Power	16VDC supplied by Indoor unit (1.58VA maximum)
Comfort Setpoint Range	60 to 90 °F (16 to 32 °C)
Setback Setpoint Range	40 to 95 °F (5 to 35 °C)
Operating Temp Range	14 to 122°F (-10 to 50°C)
Operating Humidity Range	75% or less (w/o condensation)
Dimensions (WxHxD)	4.72x4.72x0.75 inch (120x120x19 mm)
Weight (Mass)	0.42 lb (0.19 kg)



Features / Benefits:

- Up to 16 indoor units are controllable in one group
- Can be combined with a secondary controller for dual operation
- Backlit LCD display in English, French, or Spanish
- Temperature sensor with configurable offset
- Display of Temperature and Setpoint in 1°F / °C increments
- Three display modes Detailed, Standard and Simple
- Dual setpoints (individual cooling and heating setpoints) with minimum setpoint differential or Single setpoint (occupied period)
- Setpoint range limits for Cooling and Heating
- Independent cool/heat setback setpoints (unoccupied period)
- Auto changeover mode can automatically change to cool/heat mode at setpoint +/-1° F (can be configured from 1 to 4° F using field settings) with a guard timer for 15, 30, 60 or 90 min. Surely change at another +/-1° F (can be configured from 1 to 4° F using field settings) ignoring the guard timer.
- Built in 7, 5+2, 5+1+1, and 1 (Everyday) schedule with up to 5 actions per day with independent cool/heat or setback setpoints
- Automatic adjustment for Daylight Savings Time (DST)
- 48 hour clock/calendar backup (in case of power failure)
- Constantly monitors the system for malfunctions with immediate display of fault location and condition
- Prohibit buttons on remote controller
- Limit selectable operation modes
- Display can be configured not to show setpoint when unit is Off. Display Off, instead of mode when unit is off. Fan speed display removable.
- Backwards compatible

Daikin AC (Americas), Inc., 1645 Wallace Drive, Suite 110, Carrollton, TX 75006

Daikin AC Controls Engineering Department Generated Submittal Data

www.daikinac.com

(Daikin's products are subject to continuous improvements. Daikin reserves the right to modify product design, specifications and information in this data sheet without notice and without incurring any obligations)